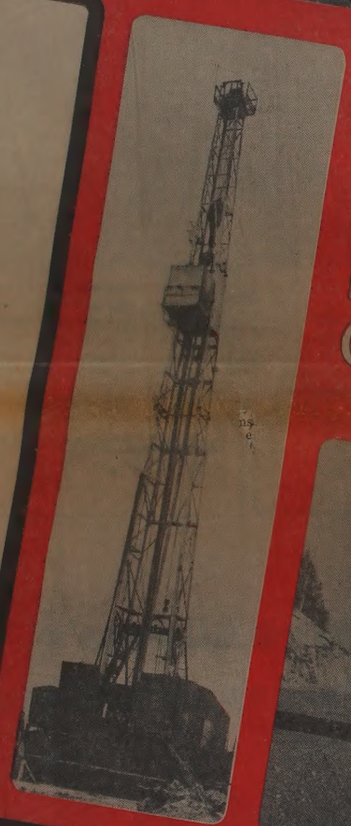
The Journal



Sixth National Northern Development Conference

The Journal's "Mining and Canada's North" section spotlights the 6th in a series of conferences for the better development of the world's last frontier. The conference is held October 31, November 1 & 2 at the Macdonald Hotel.

This section brings readers an in-depth look at the economical and human factors involved in the orderly development of Canada's North

Mining and Canada's North

POLAR PAM 4278

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Strip mining at massive Pine Point deposit

North mineral deposits valued at $23 billion

Scattered across the Northern archipelago and along the Arctic Coast are seven mineral deposits that could inject up to $23 billion into the economy when they are finally developed.

The deposits don't look like much on the map—tiny, wide-spread marks that are lost in the 1.3 million square miles of the Northwest Territories.

Yet those seven deposits promise a major impact on the national and territorial economies.

Key to the development of all these properites is marine transport and seasons extended from the current six to eight weeks by the use of ice breakers and ice-strengthened ships of ore-carrying capacity.

Unfortunately, the Canadian government is lagging almost half a decade behind other polar nations in the development of the kinds of heavy ice-breaking ships required for operations in winter ice conditions in the High Arctic.

At Strathcona Sound, which opens onto Lancaster Sound, Baffin Bay and Davis Strait, plans involve the stockpiling of concentrates milled from ore on site, then shipping in 20-to-30-thousand-ton bulk carriers strengthened to ice-breaking specifications.

Farther North, at Little Cornwallis Island, plans are already under way to investigate the feasibility of commercially shipping stockpiled ore.

The companies involved are still studying the logistics of marine transport of the ore, but present indications are that provided adequate government ice-breaking services are available there will be a sufficiently long shipping season to enable supplies to be brought in and concentrates to be shipped out at an acceptable cost.

The federal government says it will be ready to tender for a polar class ice-breaker of the type required for winter operations in the Arctic in about two years.

But such a ship won't be in service until at least five years after that.

A national furore has already been raised by the suggestion that West German super-ships capable of smashing through sea ice be used to transport ore from Baffin Island.

Yet Canada has not developed fully any capability to do the job herself, and the federal government has hardly shown wild enthusiasm at the costly prospect of building a fleet of big ice-breakers.

At present the shipping season at Resolute Bay, nearest centre to the Little Conwallis mine site, is 37 days a year, although the shipping season at Strathcona Sound is about 100 days a year for strengthened ships.

Because of this, the first commercial shipments of ore from the North could conceivably come from Baffin Island.

It is estimated that a private company would have to lay out between $40 and $50 million to develop a 22,000-ton bulk carrier capable of operating semi-independently in the Arctic for 10 to 12 months a year.

One answer might be to build a ship designed for limited operations in the months from the end of July to the end of December. Such a ship would cut development costs by about 40 per cent.

If the ore to be shipped turned out to be rich enough, the shorter season could be economically feasible.

But the ideal situation, of course, would be development of adequate federal ice-breaker support on a large scale.

Mining and Canada's North is sixth conference theme

By N. A. Lawrence

N. A. Lawrence

The National Northern Development Conference series was organized some 20 years ago, and first convened in Edmonton in 1958.

It all began when a number of individuals came together to do something about their concern of Canada's North and its orderly development. A great need was felt to remedy the lack of information and knowledge that could be applied to northern activities, and so they determined that they should bring together some of these people who could contribute to the knowledge needed to develop a clear understanding of the needs and implications of northern development. To provide some focus, a central theme was chosen and each conference since then has dealt with a specific area of interest and concern.

It was determined that conferences of the highest possible quality should be formulated, and that three-year intervals between conferences would be required to assure that degree of quality. The search for suitable speakers and the many other aspects of planning involving considerable organizational effort, and the success of past conferences has been a product of the dedication of the business and professional people involved.

Members of the Executive Committee and their sub-committees serve entirely as volunteers, and backup staff for all of their endeavours is provided by their respective businesses at negligible cost to the conference. Edmonton has contributed the kind of community spirit that has made each conference a complete success.

To this date, the conference has no paid employees. It received moral support from the Chamber of Commerce and the Alberta-Northwest Chamber — Mines-Oils-Resources, but operates with a large measure of independence.

The National Northern Development Conferences could not operate on their present scale without the financial support of the business community and the three levels of government. These bodies are called upon to sponsor various functions and activities at each conference, minimizing registration costs to individual delegates and maintaining high standards.

Speakers at the conferences likewise participate on a voluntary basis, and receive no remuneration for either travel or living expenses. That the conference is able, on this basis, to attract highly qualified speakers from the United States and other countries as distant as Japan is tribute to its nature.

The forthcoming program "MINING AND CANADA'S NORTH", promises to be one of the most interesting, since it is centred on an area that concerns and affects all Canadians. Concern for the ecology and the people of the North will receive prime consideration at several of the conference sessions and representation from the North has been assured.

A considerable amount of time following each panel presentation is reserved for statements from and discussion among delegates. These discussions form perhaps the most important and certainly the liveliest portions of the program.

Tangible results of the conference are, of course, manifest in the increased knowledge and understanding of the participants and delegates. In addition, the major concerns of the delegates are summarized as Resolutions, which are formalized and presented to appropriate governmental and other bodies. These resolutions constitute the working voice of the conferences.

Following each conference, the presentations of invited speakers, and statements made during discussion period, are compiled in the Conference Proceedings. Proceedings of the Sixth Conference will be published early in 1974, and each delegate will receive a copy.

The sponsorship of the Department of Indian Affairs and Northern Development will make it possible to distribute copies of the Proceedings to approximately 400 technical and public libraries across Canada. Experience of past conferences indicates that the limited quantities printed rapidly make "collectors' items" of the available copies.

Northern development conference kicks-off

The sixth National Northern Development Conference will be held in Edmonton Wednesday to Friday.

This year's conference theme will be Mining and Canada's North, a continuation of previous conference themes dealing with resource development in the North.

A concern for Canada's North and its orderly development is the expressed motivation behind the National Northern Development Conferences, which are held every three years.

The series was first conceived 20 years ago, and first convened in Edmonton in 1958. Since then the conferences have focused each time on a significant aspect of northern development.

The areas with which the conferences have dealt with in the past are:

1958 The Last Frontier in North America
1961 Canada's New Role in Resource Development and World Markets
1967 Man and The North
1970 Oil and Northern Development

Conference staff serve as volunteers, with some financing provided by the three levels of government and the business community. This year's executive committee chairman is N. A. Lawrence, chairman, Associated Engineering Services Ltd.

As well, speakers to the conference come on a voluntary basis, with no financial payment for travel or expenses.

An important part of the conference agenda is the time used for panel discussions on subjects relevant to the larger theme of the conference.

This year five panel discussions will be included in the program.

Panel 1, The Mineral Potential of Northern Canada, will meet Wed., Oct. 31, and will be chaired by G. H. Finland, president of Branta Explorations Ltd. of Edmonton. Serving on the panel will be Dr. D. R. Derry, of Derry, Michener and Booth, a geological consultant firm in Toronto; Dr. A. R. Barringer, president of Barringer Research Ltd. of Rexdale, Ont.; D. R. De Laporte, vice-president, western minerals division of Falconbridge Nickel Mines Ltd.

Panel 2, Principal Minerals — The Global Situation will also meet Wednesday and will be chaired by Fred Peacock, Alberta Minister of Industry and Commerce. Serving on the panel will be Saburo Tanabe, senior managing director of Nippon Steel Corp., Tokyo; Charles Bruce, vice-president of DeGolyer and McNaughton, Dallas, Tex.; and S. E. Jamieson, president and director of The British Metal Corp. (Canada) Ltd., Toronto.

Panel 3, Government and the Mining Industry, will meet Thursday, chaired by G. C. Hamilton, Chief Commissioner for the city of Calgary. Serving on the panel will be C. H. Mitchell, managing director of the Mining Assoc. of Macmillan Bloedel Ltd., Vancouver; and Jack Austin, deputy minister, federal department of energy, mines and resources.

Panel 4, also meeting Thursday, will discuss Moving Mineral Resources, and will be chaired by W. S. Ziegler, chairman of Inland Cement Ltd., Edmonton. Serving on the panel will be R. F. Moe, a mining consultant from Pacific Palisades, Cal.; R. A. Bandeen, executive vice-president, finance and administration, Canadian National Railways; W. H. German, senior partner, German and Milne, Montreal; and Richard Rohmer, barrister and solicitor in the firm of Lang, Michener, Cranston Farquharson and Wright, and deputy chairman of the Great Plains Project, Toronto.

Panel 5, meeting Friday, will deal with The Future Requirements of Northern Mining, and will be chaired by D. E. Mitchell, president of Great Plains Development Co. of Canada Ltd., Calgary. Serving on the panel will be Dr. D. A. Chant, chairman, department of zoology, University of Toronto; E. C. Manning, president of M and M Systems Research Ltd., Edmonton; and Pat Carney, president, Gemini North Ltd., Yellowknife.

In addition to the panel discussions, the conference will hear several feature speakers.

The conference will be officially opened by Alberta Lieutenant- Governor J. W. Grant MacEwan.

Alfred Powis, president Norando Mines Ltd., will address the Wednesday luncheon, having as his subject Canada — As a Global Supplier of Minerals.

The Wednesday dinner will be highlighted by an address by federal energy minister Donald MacDonald on Canada's Northern Development.

Northwest Territories Commissioner Stuart Hodgson will address himself to Government Problems of Our North at the Thursday luncheon.

Thursday evening, the dinner address will be Mining and Canada's North, given by Dr. O. M. Solandt, a director of the Huyck Corp. and the Riverside Research Institute.

The Friday luncheon address will be a summation by Arthur Smith, president of the Conference Board in Canada.

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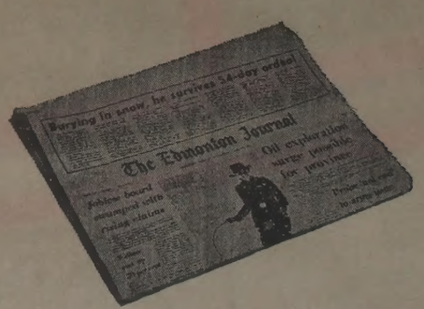

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Enormous potential in Arctic islands

Most stories by Steve Hume who spent 2½ years in the North as a Journal reporter

The implications for High Arctic mining reflected in Cominco's experimental shipment of lead-zinc ore from Little Cornwallis Island are enormous.

Possibilities of mining lead-zinc on Little Cornwallis immediately raise the question of developing Mary River, the mountain of iron ore discovered and untouched on the North end of Baffin Island.

The North Water research of the Arctic Institute of North America may also have application to petroleum reserves identified in the Arctic Islands by Panarctic Oils, a consortium controlled by the federal government.

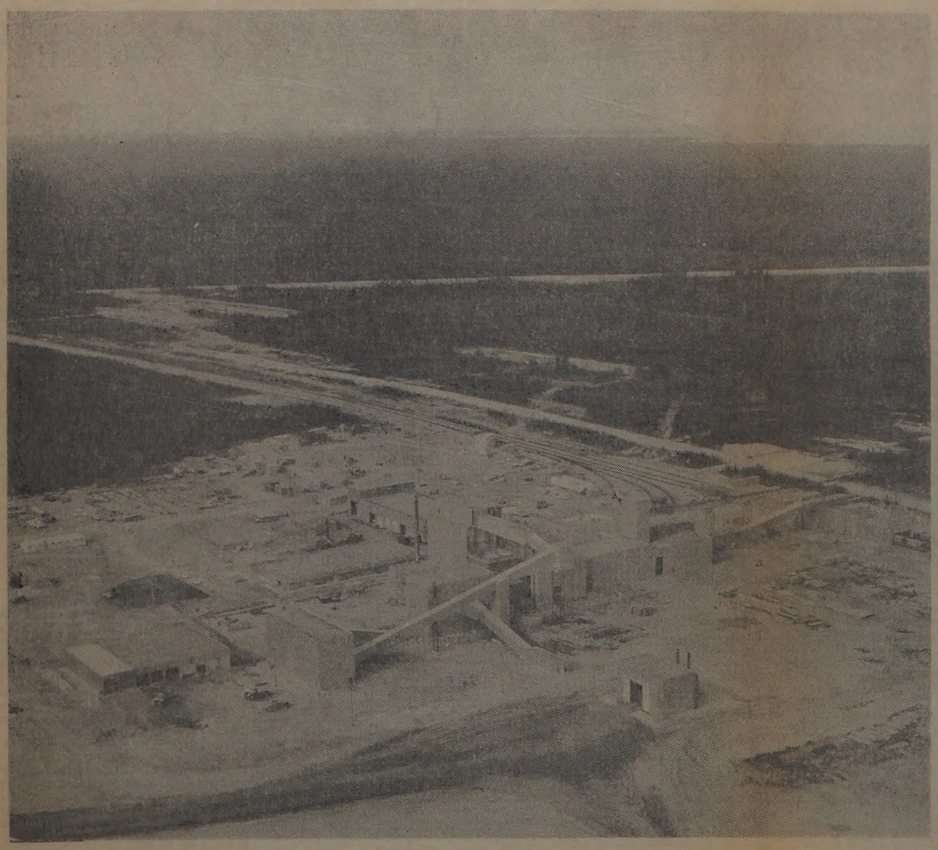
Oil has been found on Ellesmere Island's Fosheim Peninsula. Should reserves prove to be commercially feasible, short pipeline over the island would provide easy deep-sea tanker access at Makinson Point.

The tankers would have to have ice-breaking capacity because of Davis Strait, but they would have the advantage of operating in deep water where ice cover tends to be thinner than in other Arctic waters.

Iron deposits from Mary River might also be moved along an extension of the route, and presumably all that lends credibility to the idea of adding another extension to the route to handle Cominco's ore.

It is clear that development of High Arctic resources will be an interlocking process, with each step dependent upon the previous advance.

If lead-zinc ore can be economically shipped by summer convoy, the first step will have been taken towards the massive exploitation of Northern riches that so many have dreamed about.



North's biggest mine . . . Cominco's lead-zinc operation at Pine Point

Mass migrations are dreaded by northern mining employers

Every year, as spring rolls around, the managers of Northern mines prepare for the annual exodus of workers from the pits to other jobs.

Many of the straying miners will be back again in the fall, after the frantic burst of construction that punctuates Northern summers, but their mass migrations to greener pastures, however temporarily, remain one of the biggest headaches of the mining industry on the frontier.

At the giant Anvil Mine in the central Yukon management awaits the coming of April each year with something akin to dread. That the month when single miners like to pull up their stakes and head elsewhere.

In the past the pit force at Anvil has been reduced fully 15 per cent in that month. The mine experiences a turnover among single men every year that often exceeds 100 per cent.

The high turnover is one of the chronic problems that confront attempts to mine Northern ore in commercially feasible quantities from remote sites.

"Turnover figures are causing concern throughout the North, despite the best efforts of the operators . . . to reduce this through careful screening of applicants," says the Alberta-Northwest Chamber of Mines, Oils and Resources in its annual report.

"High percentages of single men living bunkhouse style is undoubtedly a major factor."

The report points out that most serious shortages in mine work forces were in the categories of skilled tradesmen.

"At the year end, shortages of heavy-duty mechanics, maintenance mechanics and electricians were affecting most Northern operations."

The roving of miners can partly be attributed to a heritage of footloose life in frontier areas and partly to high pay in urban construction jobs during summer months.

High unemployment insurance rates are probably also a factor.

But the biggest single reason for high turnover rates is simply that the majority of miners prepared to work at wilderness sites are young, single men.

"Call it a case of getting too stakey," was the way one executive with the Anvil Mine saw it.

"They have too much money and it is burning a hole in their pockets — they have to get out and blow it."

At Anvil, located seven miles outside the instant town of Faro and more than 200 miles North of Whitehorse, there is a turnover of four to five per cent every month. In some months it soars to 15 per cent.

One method of keeping men at the mine is to bring in their families if they are married and to subsidize rents and groceries.

The method works to some degree. Turnover among married men is only on the order of 20 per cent, a far cry from the figures relating to single men.

The human problems involved in running such a huge Northern mine come on top of the basic physical problems that have made many ore bodies above the 60th parallel uneconomic to work.

Modern technology has overcome the problems of access and transportation at Anvil, however.

Discovered in 1965, the ore body consists of 63 million tons of high grade lead, zinc and silver some 348 miles from Tidewater at Skagway on the Alaskan Panhandle.

The Anvil mill opened in 1969.

Every day trucks hauling concentrates travel a total of 24,000 miles equivalent to a trip around the world.

Today electric shovels and 65-ton trucks have sliced a 400-foot deep gash into the Anvil Mountains and 30-ton trucks hauling around the clock move lead and zinc concentrate over the gravel highways to Whitehorse and the railhead.

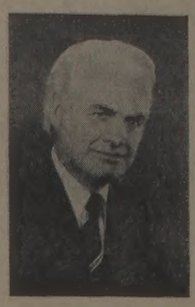
Ore goes through the mill at the rate of 7,800 tons a day for processing into concentrates.

Japan and Germany are the biggest buyers. Last year 150,000 tons of lead and 235,000 tons of zinc went to Japan, while 90,000 tons of bulk concentrates went to West Germany.

Tailing and waste from milling are piled in a man-made mountain near the open pit and snow is blackened for some distance around the mine.

Although there has been little research done regarding eventual reforestation and revegetation, particularly on the tailings dump, the company is already planning some appeasement of environmentalists.

The crater that will eventually be left by the mine is to be filled with water from a brook running through the area and when it becomes lake-sized will be stocked with game fish.



WELCOME DELEGATES

The kinship of Edmonton with the North and its people, is one of long standing. The continued interest by the City of Edmonton in the orderly development of the north will maintain that kinship far into the exciting future.

It is my privilege, on behalf of the members of Council, the Commissioners, and the citizens of the City of Edmonton, to bid a warm and friendly welcome to the delegates attending this important conference.

Ivor G. Dent

IVOR G. DENT
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White Pass Railway still vital to Yukon development

Three-quarters of a century ago the Klondike stampeders were backing up at the foot of treacherous passes through the 7,000 foot Coast Range.

They were starving on the Chilkoot and freezing on the White Pass.

So the White Pass and Yukon Route railway was built, from the Pacific Ocean to the heart of the Yukon with one object in mind: to get the men across the mountains and move supplies to keep them in the gold fields.

Today the White Pass railway is as vital to the development of the Yukon as it was to the sourdoughs flocking to pay dirt in the Klondike creeks.

In 1973 it's a three-way rush. Essential freight still goes in cheapest and fastest by rail, heavily-laden trains move out the minerals that are the life-blood of the modern Yukon and almost as many tourists are stampeding to the Klondike as in the wild old days of 1898.

Mineral production meant $79.6 million in the Yukon in 1970-71, with the bulk of production in zinc at $28.8 million and lead at $21.7 million. Asbestos was worth $15.2 million.

A big chunk of the lead-zinc production was moved to world markets by the White Pass and Yukon Route.

Today's operation, still clacking slowly through some of the world's most rugged scenery on a picturesque narrow-gauge track, would boggle the minds of the rough, steel-driving men who punched the railhead through the mountains to Whitehorse in two years.

It's a computerized, integrated, analytical system that moves phenomenal tonnages of freight and natural resources each year in the steady flow that is essential to the continuing economic development of the Yukon.

More than 700,000 tons of freight move over the White Pass rails in a good year, at a ratio of 10 tons of raw materials going out for every ton of finished products going into the Yukon.

Much of the freight is in the form of lead-zinc concentrates from the huge Anvil mine, a 63-million-ton ore body near the town of Faro.

It is in the moving of the Anvil ore that the technological sophistication of the transportation system is revealed.

Concentrates are loaded on giant trucks in 30-ton containers at Faro, then driven over 200 miles of gravel road to the Whitehorse railhead.

Trucks roll away from the strip mine on the average of one every 20 minutes or so, and travel about 24,000 miles every day in total.

At Whitehorse, the truck containers are automatically loaded on flatcars and the train takes them the rest of the way in 30-car batches.

Skagway, Alaska, is the site of the biggest automated industrial development in the state.

Here the containers are unloaded and the concentrates dumped into three massive storage piles — lead, zinc and bulk concentrates containing both.

Three ore-laden trains a day arrive at Skagway, where the terminal employs 200 of the town's 700 inhabitants.

The five-man operation at the storage warehouse handles an average of 12 to 17, 60,000-pound cars every hour, storing the concentrates in a warehouse with an 80,000-ton capacity.

Deep sea sailing ships from Germany and Japan, chief purchasers of the Anvil ore, arrive at Skagway twice a month for 25,000-ton cargoes.

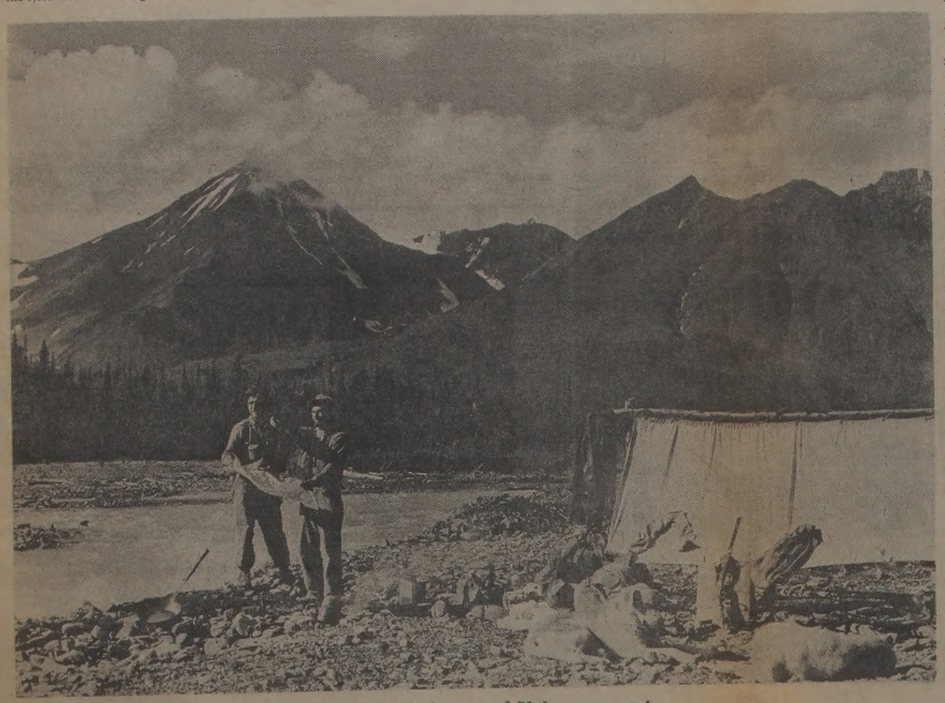
That's the outbound operation.

An 11,500-ton displacement White Pass steamer handles freight between Vancouver and the Yukon.

The ship sails from the B.C. port to Skagway in 60 hours and can carry 6,400 tons in specially designed container units that are stowed in the hold almost automatically.

It can load a full cargo directly from flatcar to hold in a matter of hours and the containers are designed for truck traffic as well as train and maritime transport.

In addition to bulk cargo, the ship has tanks for almost a million gallons of fuel oil, diesel and gasoline, all of which goes to Whitehorse from Skagway via a four-inch pipeline that was part of the original Canol system during the Second World War.



Prospectors camp in rugged Yukon mountains

Inuvik's three airports

Inuvik is the smallest multi-airport city in the world.

There are three of them at the sprawling boom town of 3,500.

And every inch of runway was needed last year to cope with the 50 000 aircraft movements in the Mackenzie delta community.

The main Inuvik airport, 10 dusty miles from town, looks like Toronto International crammed into a sardine can when flights from Edmonton and Whitehorse converge.

Overhead there are almost as many bush planes, commercial jets, piston-driven freighters, oil company twin Otters and private aircraft as there are blood-thirsty delta mosquitoes.

With up to 4,000 aircraft movements a month at the airport, the short dirt runway in the downtown area, and the summer float base, winter ice strip, the community has the most air traffic in the North.

At one point there were 18 of the heavily instrumented twin Otters operating out of Inuvik and only one of them was available for charter. The other 17 belonged either to government or industry or were tied up in long term lease arrangements.

Prospecting still booms in N.W.T.

A prospecting boom that began in 1969 is still going strong throughout the pre-Cambrian shield.

According to the department of Indian affairs and northern development a total of 41 three-year mineral prospecting permits have been issued for 1971.

The permits involve some 5,181,705 acres in Canada's Northwest Territories.

Seventy-five per cent of the exploration work will be conducted in the Arctic and Hudson Bay mining district. The area includes Baffin Island where one of the world's largest deposits of iron ore was discovered in the early 1960s.

The new permits became effective April 1 and are valid until March 31, 1974, in an area almost four times the size of Prince Edward Island.

A news release from the office of northern development minister Jean Chretien predicted: "It will only be a matter of time before more new mines are brought into production as a result of the prospecting activities currently underway."

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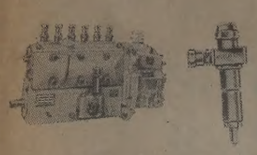

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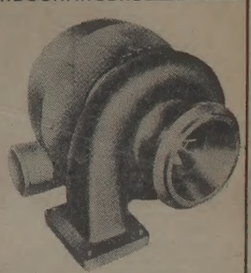

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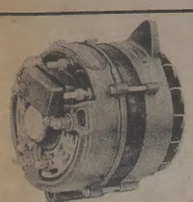

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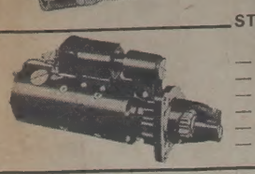
— Robert Bosch
— Leece Neville
— CAV
— Prestolite

STARTERS



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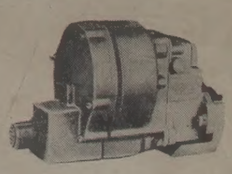
— Simms

MAGNETOS



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First Conference	*The Last Frontier in North America*	1958
Second Conference	*Canada's New Role in Resource Development*	1961
Third Conference	*Canada's Northland and World Markets*	1964
Fourth Conference	*Man and the North*	1967
Fifth Conference	*Oil and Northern Development*	1970

Sixth National Northern Development Conference

Mining and Canada's North 1973

Edmonton hosts Canada's premiere conference concerned with the problems & opportunities for mineral development in the North. Three years of planning & preparation have been devoted to bringing the foremost, authorities in their fields together at the **Macdonald Hotel, Oct. 31, Nov. 1 & 2** to prepare resolutions for action by government & industry to promote & expand Canada's Northland.

Objective:

"To further stimulate the orderly development of Canada's Northland"

Economics, technical problems critical in development

The critical obstacles to development of mineral resources in the Far North have always been a combination of economics and technical problems.

So far they've stymied everyone who has dreamed of unlocking the Arctic treasure chest, and that's a record that goes back just under 400 years.

First fingers to be burned in the Arctic belonged to Sir Martin Frobisher and Queen Elizabeth I.

The temporarily reformed pirate, with the help of some disreputable financial backer and a pair of sleazy assayers, managed to convince the Crown he was on to a gold mine in the New World.

In the 1570s he managed to talk the Virgin Queen into putting up part of the capital backing the "Companye of Kathai" with the object of sending mining expeditions to Baffin Island to dig the gold his assayers said he had discovered.

Despite warnings from more reputable assayers, Frobisher sailed away on two further expeditions, bringing home hundreds of tons of what was revealed to be iron pyrites — commonly known as fool's gold.

Thus the first mining operation in the Arctic became the first to go bankrupt. Frobisher's chief backer was flung into debtor's prison and the false assayers conveniently vanished.

That is the kind of investor's nightmare that kept money out of mining ventures in the Arctic until recently.

While Frobisher's expedition was the first shipment of ore from the Arctic, the second shipment didn't come until this month.

There is the problem of distance to world markets, which is the operative economic factor that governs any consideration of mining in the Far North. It is compounded by the technical problems created by climatic conditions, terrain, and the special difficulties of transportation through an ice-bound sea.

But developments on Little Cornwallis Island by Cominco and Bankeno Mines Ltd. indicate that industry may be on the verge of licking the old problems that have blocked exploitation of mineral reserves for so long.

For one thing, direct ocean shipping of the rich ore is emerging as a distinct possibility for moving ore from the remote regions of the High Arctic to southern markets.

Cominco has been investigating the possibility of using 30,000 ton freighters to carry the lead-zinc ore from the Cornwallis property despite its location 50 miles north of the 75th parallel.

Even to the eyes of a layman the idea looks appealing.

Already one shipment of lead-zinc ore from the Cornwallis find has been shipped by freighter to a southern port. More than 3,500 tons of the ore were recently unloaded in Ogdensburg, New York where it will undergo metallurgical testing.

If the tests on the ore go well it may not be long before Cominco's mine becomes productive on a year round basis.

But the question of transportation is also a real one, and with $5 million sunk into the project already, Cominco and partner Bankeno Mines are watching still uncompleted studies.

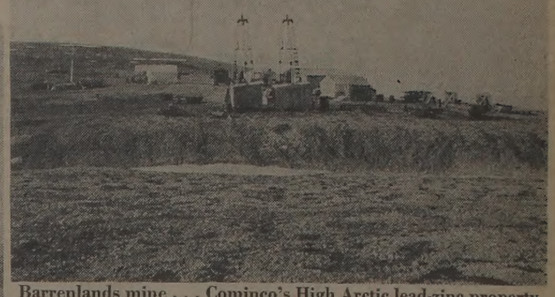
The deciding factor will likely be the world market value of lead-zinc rather than the capability of ships to carry the ore.

Narwhal-Lauritzen Shipping Ltd., carriers of the Cominco ore shipment, utilized close ice-breaker support on the 27-day voyage this time around.

The discovery site is close enough to Resolute Bay, with its stockpiles of fuel and supplies, to maintain a base that is less expensive to run than other exploration sites in the High Arctic.

And what is more, there has been shipping activity in the Resolute Bay area since 1819 when Rear Admiral Sir William Edward Parry discovered Cornwallis Island while searching for the Northwest Passage.

Golden future! New lease on life for North's oldest gold mine



Barrenlands mine . . . Cominco's High Arctic lead-zinc property

North still depends on ships

To the residents of half a hundred isolated Northern settlements, the annual sea lift is a fact of life that cannot be ignored.

Each year the out-lying settlements depend upon the ships to bring food supplies, fuel, household goods, furniture, even new houses, which must last through the long, bitter winter.

But the sea-lift is a phenomenon that is endured by most Northerners who rely on it, rather than enjoyed.

As the inflationary spiral continues to grip the Canadian economy, freight rates to the Arctic continue to escalate — but there are those who think the tariffs are climbing faster than is warranted.

Bryan Pearson, member of territorial council for the Eastern Arctic, has complained in public that shipping firms are "blackmailing" Northerners.

Costs of sea lifting prefabricated building material to Ellesmere Island last year topped $1,800 a ton. Groceries travelled to Grise Fiord at a cost of $323 a ton.

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Staking rush on increase

With improving world markets for base metals, a major staking rush has been going on in some of the most remote mountain regions of the North.

Heavy staking of claims has taken place over the past 10 months and more is expected in a rich belt of mineralized rock that swings in a 250-mile long arc through some of the world's most remote wilderness.

Starting on the Yukon flank of the Selwyn Mountains, about 150 miles north of Watson Lake, the rush zone sweeps in a broad curve through the Mackenzie Mountains of the N.W.T. and back into the Yukon about 200 miles northeast of Mayo.

First hints that something big was developing came last winter with a flurry of claim staking in the Summit Lake region of the Yukon, roughly 100 miles east of the tiny settlement of Ross River.

But late this summer the action shifted in a substantial way to Godlin Lake, 150 miles west of Norman Wells, where staking was extremely heavy for a time.

Activity is also expected in the Bonnetplume River area this winter.

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And service people in the field like Roy Richford, Manager, Sales Development, Edmonton — Tel: (403) 429-8786 — available to work with you on the spot.

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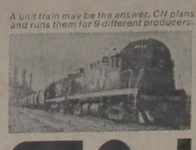

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Distribution systems for the mining industry.

North natives don't share government enthusiasm

Ottawa has been telling Northern natives for two years now what a marvelous employment opportunity the proposed $6-billion natural gas pipeline down the Mackenzie Valley will be.

According to the federal government jobs will outnumber the work force available, pay will be high, and the bureaucracy will ensure that Northern natives get first crack at employment as it develops.

In addition, stringent government guidelines and a $4-million research program by the pipeline consortium will ensure that environmental disruption is kept to a minimum in the sensitive Arctic.

It's a picture of wealth and prosperity for a people who are only now beginning to emerge from the kind of 19th Century economy that has characterized the North for so long.

This time, however, the Indian and Metis people forming the majority of the 8,000 or so dwellings in the beautiful 1,200-mile-long valley are having none of the government's optimism.

Development on the scale of the pipeline, they say, will certainly bring the things promised by the government — but it will bring them to the whites, not the native people. Their vision is more one of social catastrophe for the eight pastoral settlements scattered along the right-of-way, and they fear the bulk of economic benefits will go to the whites who already control the economy of the N.W.T.

So far, the goernment is unable to refute that argument with anything more than promises and vague generalizations.

While more than $30 million has been spent on research into the feasibility and environmental impact of the proposed pipeline, less than half a million has been spent investigating social impact.

Or as one young woman succinctly put it at a public forum recently: "We will soon know all about what the pipeline will do to caribou, but we still have only the faintest notion of what it will do to people."

Only now, with the National Energy Board hearings looming, is a frantic scramble on to assemble data showing what the massive construction project will do to remote and unsophisticated Indian settlements.

The pessimistic point of view of the natives, on the other hand, has plenty of recent examples to back it up.

Although the massive oil and gas play that dominates the Arctic economy involved $243 million last year, twice the budget of the N.W.T. government, the common people have benefited little.

Panarctic, the government-controlled consortium, has hired about 30 Eskimo workers from the Baffin Island settlements of Pond Inlet and Arctic Bay, and a scattering of men are employed on seismic lines and laboring at exploration sites in the Western Arctic.

But the infant-mortality rate in the N.W.T. is still 2½ times the national rate, and while roughnecks have their T-bone steaks and fresh tomatoes flown in from Edmonton, thousands of families still live in 12-foot-by-14-foot plywood "matchboxes."

Construction of the Mackenzie Highway, considered by most to be a vital component of any pipeline project, generated a belated make-work project on the part of the federal and territorial governments yet it involved only the most basic of laboring jobs.

Development of a gas pipeline at Pointed Mountain, near the British Columbia border in the southwest corner of the N.W.T., did little to banish the fears of native leaders as to who would really benefit from such projects.

The gas field was developed 30 miles from the trapping community of Fort Liard. Construction jobs lured men to the site for monthly wages worth more than a year's work on the trapline.

While the construction went on, and off-duty workers watched canned television in their snug prefabricated trailer units, Mrs. Angelique Bertrand, nearly 80 and a widow, spent the winter shivering at 40-below in a canvas tent at the nearby settlement.

When construction was completed a year ago, the pipeline meant permanent jobs for only a few men, all of them from outside the N.W.T., and the trappers who came in from the bush to earn big money are faced with the prospect of going back on the land or taking welfare.

Some people are saying Pointed Mountain is a small-scale model of what the Mackenzie Valley pipeline would be, and the picture it creates is so disturbing that the territorial council's standing committee on development and ecology has been prompted to action.

The concern is evident in the two questions directed by the committee to Jean Chretien, minister of Indian and Northern affairs, "in view of developers' claims regarding the benefits their activities will bring to northern peoples.

"Why have the people of Fort Liard not benefited from the natural gas found in their own backyards?" the committee asks.

"What steps is the department of Northern development taking to rectify this glaring and grievous omission?"

That's the side of development that federal officials are not too interested in discussing and the once-lauded Pointed Mountain project seems these days to have vanished like a ghost from the government's consciousness.

The argument in favor of the Mackenzie Valley pipeline is that while the project itself will create only about 200 permanent jobs after the frenzy of construction, it could generate many spin-off jobs similar to the 200,000 created in Alberta by petroleum development after Leduc.

But to native leaders it is increasingly clear that any jobs generated subsequent to pipeline development will go to the whites who are already entrenched in positions of power in the Northern economy.

The rumbles of discontent among the native majority grow louder with every passing month.

At Fort Wrigley, a tiny trapping community on the banks of the Mackenzie River, the 150 Slavey Indian residents recently sent a petition to Prime Minister Trudeau asking that development be stopped until native land claims had been settled.

Later on, when federal and territorial officials flew to the community to discuss the situation, the people said they were not interested in talking to bureaucrats without the power to make decisions.

The settlement councils of Fort Resolution, Snowdrift and Lac La Martre threw their support behind the people of Fort Wrigley at a conference June 14, adopting resolutions that the proposed Indian land settlement of Treaties 8 and 11 take place before the highway is extended further.

They also demanded that "more attention be paid to the social and environmental impact of the highway in the form of participant-observer research studies."

James Wah-Shee, president of the Indian Brotherhood of the N.W.T. which represents 7,000 treaty Indians who have claimed ownership of the 400,000 square miles in the Mackenzie Valley, is a hardliner on the issue.

"Our position is that we will strongly oppose any pipeline until we have obtained a settlement of our land claims. It has been stated very bluntly in several communities that they don't want a pipeline.

The predominant danger of the pipeline project in the eyes of the young Dogrib leader relates to the large influx of whites the development will inevitably bring.

Estimates of the labor force required vary from 10,000 men to 16,000 men, while only about 1,000 workers are available in the Mackenzie Valley at present.

"Our main worry is control of the communities. Whites will come into the communities, but the process of integration will be all one way, and they will take control of the economy and the political structure."

Mr. Wah-Shee insists that the Indian people he represents are not against development, although "in the past development has never benefited native people."

What natives want, he says, is the opportunity to participate in all aspects of development, not just the jobs of manual labor that have always gone to Indians.

"We are saying that we will not be their slaves. We will not accept their menial labor."

As for promises from Indian affairs and Northern development Minister Chretien that the government will force construction companies to give jobs to natives — the Indians reject them out of hand.

"Northern development and the pipeline consortium pretty well sleep in bed together and the Indians are left standing at the door," Mr. Wah-Shee says.

He charges that Mr. Chretien cannot deal objectively with the problem on behalf of Indians because his role as Northern development minister is in direct conflict with his role as head of Indian affairs.

What Mr. Wah-Shee hopes for is a massive cash and land settlement similar to that in Alaska, and an opportunity for native people to obtain equity in development projects.

Then, as part owners, natives will be strongly behind development, he predicts.

"We certainly intend to invest in development in the North if we have the opportunity, and any money that we get will naturally go back into the Northern economy. We're not against development, we just want our fair share."

James Rabesca, the Dogrib Indian who is a member of the territorial council, says he is not against development but his constituents are not sure it will be a good thing for them.

"They want an interest in development, they want development in which they can participate."

Mr. Rabesca is another who doesn't believe federal assurances that Indians and Metis will get jobs when the massive pipeline project goes through.

"I think it's just a lot of talk—they'll promise us anything to get the project going."

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Dawson City still reeling from the gold rush days

The rotting buildings stagger against each other like ghosts of drunken miners stumbling home from Lousetown brothels and saloons across the Klondike River.

Dawson City is a good town for ghosts.

The dead men on the hillside far outnumber the 600 living who linger three-quarters of a century after the gold rush broke and ebbed over the rugged interior of the Yukon.

Thousands of them are buried among the quiet birch woods on the slope of the Midnight Dome, stones and wooden head pieces poking from deep snow in winter, tall, waving grass in summer.

They are the witnesses of the classic crash—the biggest boom and bust Canada has ever seen.

Their graves look down on weather-beaten false fronts that sag and tilt crazily, signs faded back into drab greys and browns, boards bleached and splintered by temperatures that go up and down from summer to winter like a bucking mule.

Elaborate balustrades and balconies almost lend an air of elegant, decaying splendor to the old saloons and hotels, but the rot within is evident through the fancy bay windows.

Fine paisley wallpaper hangs in shreds and tatters, stained with water marks and splotches of rust. Pages of the long dead Vancouver Daily World moulder under buckling floorboards.

Old buildings are propped up on timber-crutches where they threaten to collapse into the unpaved streets, and the Red Feather Saloon, boldly promising wines, liquors and cigars, is boarded up with old sheet metal and blackened plywood.

Here and there heaps of charred wood testify to the death of another old building by fire.

Even some of the modern buildings tilt this way and that to the heaves of permafrost under the river flats.

More than 75 years of brutal winters and baking summers in the Klondike have ravaged the city that was once home to more than 30,000 miners and the men who supplied them with food, liquor, women and entertainment.

Today most of old Dawson is gone.

Many of the buildings have rotted back into the ground that gave the city its raison d'etre not far south of the Arctic Circle.

Most of the smaller things that came with the gold rush are gone too, looted and plundered over the 10 years since roads linked Dawson with the outside.

Natural disintegration has taken care of virtually all the rest.

Klondike City, called Lousetown by those with fewer Victorian sensitivities, has vanished from the point between the Klondike and Yukon Rivers where it sprang up with shores, hard liquor and delousing facilities.

The willows and birches have reclaimed the wild old site as well as the farms that once dotted the Yukon River.

Downstream from Dawson, overgrown and camouflaged by drifted snow, four stately sternwheelers collapse in a river steamer's graveyard. Once they travelled from Dawson to St. Michael on the Bering Sea.

Across the river the ghost-town Moosehide stands silent.

In the Yukon River, Dog Island gives no hint of its past as the tethering ground for the dog teams driving up and down the frozen waterway to the gold fields.

Dawson alone has maintained some of its ties with a frontier past.

Old buildings are scattered among newer houses and establishmen'ts and some contemporary business operations still use the original premises.

But the hundreds of buildings that once swept right up the hillside behind the flats have vanished forever. There are no signs that they, or the rough men who built them, ever existed.

Insensitive people have given the natural process of decay more than a helping hand.

One proprietor of a hotel in Dawson bought abandoned hotels at tax sales and then tore them down to prevent competition.

Five or six hotels in downtown Dawson have been destroyed in what a local clergyman describes as "the depression mentality" that has gripped the community in recent years.

Others have systematically raped Dawson of a substantial measure of its heritage for other reasons, ranging from financial interests to misplaced romanticism.

An Alaskan businessman is reported to have outfitted his home with furniture and interior carpentry from some of the bars and hotels.

Only half the log cabin once used by Jack London remains in Dawson, the other half is in San Francisco's Jack London Square.

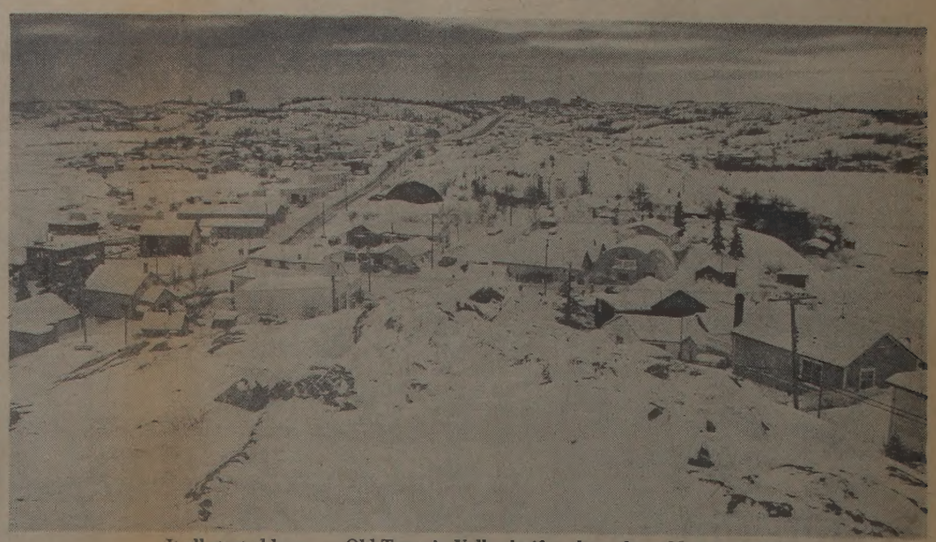
Americans moved the log cabin into Dawson from 40 miles out in the bush, then replaced every second log with a new one, reconstructing a cabin in the United States with the old logs they removed.

Other buildings in the community have been threatened by municipal and government interests because of the danger posed by their condition.

But the citizens of Dawson are awakening to the fact that the future of the settlement probably lies only in its ties with the past.

The federal government also has an extensive restoration project that is leading the way to the preservation of the former Yukon capital.

The old Palace Grand Theatre, built in 1898, has been completely restored to is former glory—right down to the original Edison light bulbs at $5 each.



It all started here . . . Old Town in Yellowknife, where the gold rush started

Oil brings new life to town

Inuvik is a small town by anybody's standards. Just over 3,500 people scattered over a couple of square miles in the scrub spruce forest at the edge of barrens.

But physical size doesn't tell the real story.

The Mackenzie River delta town with dirt roads is in the throes of a massive economic boom that is breaking over the region like some massive 20th Century tidal wave of technology.

There were only 2,000 permanent residents at Inuvik four years ago, and the town was only 10 years old. It was founded in 1958 as a sleepy alternative to flood-prone Aklavik, the town that was supposed to conveniently disappear.

Then came Prudhoe Bay on the North Slope of Alaska and Imperial Oil began banging off oil and gas discoveries like corks at a champagne party.

As discoveries sparked capital expenditures on exploration, the petroleum workers began to pour into the delta area, and with them came the service personnel, entrepreneurs, civil servants, expediters, professional people, teachers and equipment operators.

More than 1,500 of them poured into Inuvik in four years, not many by Southern standards but a remarkable influx for a settlement that depends mainly on air links with the outside world.

Today the people are still pouring in, and the signs of a boom economy are everywhere.

More than 100 new businesses have opened in the community in the last three years, and even they are hard pressed to provide services for the onslaught of new residents.

Adding to the pressure is a constant stream of transients that use Inuvik as a jumping off point and recreational area for the frontier oil and mineral play.

The rapid economic growth brings the potential for radical changes in the way of life in the Western Arctic, but it also places social and psychological stress on the community and outlying settlements.

At a time when many native people are looking towards a wage economy as the means to a better standard of living and more financial security, the boom has turned a little sour — especially for those in other settlements who look to Inuvik for the kinds of steady, well-paying jobs that are not available at home.

The booming business sector and the stampede created by the oil play have inflated the cost of housing and developed land to the point where the community faces a serious crisis.

In fact, in many ways the Northern dream must remain just that for those who are not employed by government or a corporation willing to absorb the costs of heavy subsidies.

Even housing for government employees is at a premium. In the private sector the situation fluctuates from impossible to almost impossible.

There are all kinds of jobs for people from Aklavik, Fort McPherson and Arctic Red River, but there are no places for people who want them to stay in Inuvik.

A trailer unit worth $30,000 in the town rents for $500 a month and utilities cost another $200.

At the heart of the problem is the inflated value of serviced lots, which have skyrocketed from $1,000 a few years ago to the present price of $7,500 and more.

That kind of price tag, and the monthly cost of utilities later, kicks privately owned housing far beyond the range of most incomes.

There is a similar crunch in apartment accommodation, with substantial waiting lists for what are often cramped quarters.

Permits for prospecting

OTTAWA (CP) — Nineteen prospecting permits for mineral exploration in the Northwest Territories have been issued for 1973, the northern affairs department announced here.

The three - year permits open up 3,560,000 acres of industrial exploration.

About 58 per cent of the exploration work will be conducted in the Arctic and Hudson Bay mining districts. Initial exploration will be done from the air.

The government's prospecting permit program for industry was initiated in 1961.

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Minerals next break for North

There are riches other than oil locked in the ancient, glacier-marked rocks of the Arctic.

Despite the petroleum drama that has been at centre stage for the past few years, there are mineral developments waiting in the wings that could be the next great breakthrough in Canada's Far North.

Best known of the undeveloped mineral discoveries in the Northwest Territories is Baffinland Iron Mines' deposit on the northwest coast of Baffin Island, about 500 miles above the Arctic Circle.

It's a solid mountain of ore that is 68 per cent pure iron and the estimated 127.7 million tons of reserves add up to 47 per cent more than the entire known recoverable domestic iron resources in the United States at present.

Surprisingly enough, although the Mary River deposit is best known, it is far from the biggest deposit of iron ore so far dilineated in the Arctic.

On the west side of Melville Peninsula where it juts into Foxe Basin, Borealis Exploration Ltd. has found a 2.6-billion-ton deposit that is 40-per cent iron.

Less than 100 miles away across the barrens is Borealis Exploration's eastern Melville Peninsula find of 1.1 billion tons of iron ore grading at an average of 30 per cent.

The estimated tonnage from these three iron ore deposits is a total of 3,287,700,000 tons.

The west Melville Peninsula find alone is estimated at a gross value of $16.3 billion, while the sister discovery is pegged at an estimated gross value of $5.2 billion.

Far to the North on Little Cornwallis Island, a large lead-zinc prospect delineated two years ago has all the earmarks of becoming the first major mining operation in the Arctic Islands.

The potential mine site is more than 1,500 miles northeast of Edmonton and is jointly controlled by Cominco Ltd. and Bankeno Mines Ltd.

While reserves have not yet been totally calculated, one 1971 drill hole indicated 450 feet of lead and zinc grading at an average of 20 per cent and estimates indicate a possible ore body of 24 million tons.

Last winter a decline was driven down through the ore body and the exploratory mining operations yielded more than 3,500 tons of ore which is undergoing metallurgical analysis in the United States.

There are signs that the joint owners believe the discovery is a distinct economic possibility for exploitation.

On the Arctic Coast there are substantial copper deposits off the Coronation Gulf, and there is lead-zinc near Bathurst Inlet.

West of the Coppermine River is a 4.2-million-ton copper find with a gross value estimated at $123 million, while to the east of Coppermine, Kennarctic Explorations Ltd. has a copper-zinc deposit estimated at 5.2 million tons and worth an estimated gross value of $222 million.

Near Bathurst Inlet on the Hackett River is a lead-zinc-silver deposit that was estimated at 10-million tons in 1971, with a gross value of $400 million.

Another high grade lead-zinc-silver deposit on the Northern tip of Baffin Island also looks attractive.

Mineral Resources International's property on Strathcona Sound is estimated to be able to produce 1,500 tons of ore per day.

Lead concentrate is expected to total 14,000 tons annually, with 140,000 short tons of 60 per cent zinc, 9.24 per cent cadmium and eight to 10 ounces of silver per ton of other concentrates.

Watch pipeline says professor

Not all the experts are in favor of all out development of Canada's Northern petroleum reserves. Some scientists with the most impeccable of academic reputations think such a move would be complete folly.

One of them is Dr. Tuzo Wilson, a geophysicist with the University of Toronto.

He told a national forum of scientists interested in developing guidelines for their activities in the North that development of Arctic petroleum reserves would not be in the best interest of Canada.

"The Arctic is a graveyard of projects abandoned because they were ill-conceived and too hastily executed," he warns, calling for more consideration of social, economic, environmental and financial factors before any government decision on the construction of a $5 billion pipeline from the Arctic coast to the south.

The consortium investigating the feasibility of a pipeline is expected to put in an application for a construction permit this winter, with deliberations and hearings to last up to two years.

"Delay to get on with needed research will impose no penalties on Canada because oil and gas reserves are adequate for some years to come," Dr. Wilson predicts.

"Slow construction will ease financial problems, reduce Canadian inflation, stretch out supplies of petroleum, and ensure time to train and employ a small number of Canadian research and construction workers over a long period of time instead of having to import a large labor supply already trained from the United States for a short period of time."

Early estimates were that a gas pipeline down the Mackenzie would require about 5,000 men, but R. A. Hemstock of Imperial Oil has suggested 15,000 is not an unrealistic estimate of the manpower requirements.

Dr. Wilson suggests that enthusiasts for growth are leftovers from a previous era.

"The tremendous growth of recent decades cannot be long sustained. Enthusiasm and expansion naturally appeal to government and giant American corporations as they appeal to voters and produce quick profits.

"But are short-term expedients inviting long-term disaster, since they must soon be replaced by rapid deflation?"

Dr. Wilson suggests industrial nations are on the verge of an energy crisis that will exhaust petroleum reserves in the foreseeable future.

"It is clear that North America will within a lifetime essentially run out of petroleum and that we face an energy crisis of major proportions which must rapidly increase the cost of fuels.

"It would seem the only prudent course is to husband and eke out our Arctic reserves of petroleum, while doing the research required to use, develop the North and provide alternative permanent sources of power.

"It is all very well for economists to say happily that something will turn up, but it is the engineers and scientists who will have to produce the alternatives.

"At the present I cannot see what fuels will be used to heat Canadian homes, power industry and operate automobiles and airplanes when supplies of petroleum run out, as they will shortly do."

Gold mine looking more attractive

The once-beleaguered Cominco gold mine at Yellowknife has won a new lease on life with the company's commitment of $12 million in development funds.

Con Mine, threatened at one time by basement level gold prices, is looking more attractive with every upward hike in the value of the precious metal.

Half the money committed to Con will go towards a new mile deep shaft.

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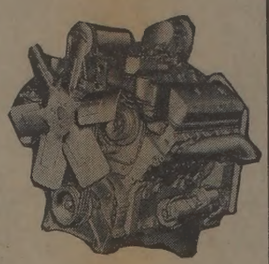

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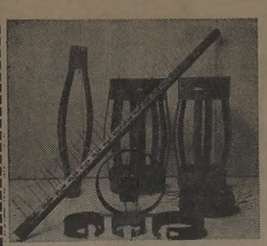

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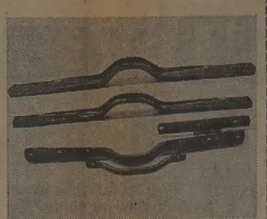

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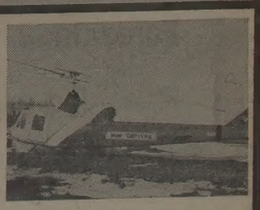

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See $50 million in mining

If present trends continue, the mineral industry North of the 60th parallel can look forward to some hot exploration prospects in the coming year.

Speculation dollars available for exploration in the Yukon and Northwest Territories this year are expected to top $25 million and could possibly soar to $50 million.

The bouyant forecast revolves around the increasingly strong market position of base metals producers in the world economy.

Although actual production of base metals may have declined slightly or maintained previous levels, better market conditions indicate the cash value of such production can be expected to make healthy increases.

The optimism of industry is reflected in substantial staking rushes in the Yukon-N.W.T. border country of the Mackenzie Mountains, and the Keewatin district on the west coast of Hudson Bay.

Mineral production of base and precious metals in the Yukon reached $102.8 million last year, giving the territory status as the most valuable per capita production area in Canada.

Per capita value of mineral production topped the provinces at a respectable $5,400.

In the N.W.T. the per capita value of mineral production was an equally healthy $3,515.

Total mineral production was boosted to a value of $126.5 million, ranking the vast area ninth in Canada.

Metals accounted for the bulk of the production figures again, with lead and zinc the biggest items at better than 80 per cent of the total. The rest belonged to natural gas from the Pointed Mountain field and crude oil from Norman Wells.

Biggest increases in the petroleum arena of the N.W.T. came with production of natural gas that zoomed from a 1971 level of $117,000 to $1.3 million last year, outstripping oil production valued at $1.2 million.

The Yukon Territory became the leading Canadian producer of lead, with that metal accounting for 34 per cent of the mining production at a value of $34.8 million.

The healthy state of the mining industry has speculation flying that the next few years could be a period of expansion after a substantial period of depressed markets and escalating production costs.

At least four major corporations are examining what appear to be excellent finds in the Mackenzie Mountains, the huge iron ore deposit at Mary River on North Baffin Island looks more attractive all the time, and there are still hot gold properties in the Contwoyto Lake area of the N.W.T.

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The 1,600-mile waterway from Fort McMurray, Alberta, to the Arctic Ocean follows the courses of the Athabasca, Slave and Mackenzie Rivers and crosses the Lakes Athabasca and Great Slave. The single obstacle to navigation on this long waterway is a set of four rapids found at Fort Smith which lies just above the boundary of the 60th parallel.

The first inhabitants of this region were the Slavey Indians, so named by later-arriving Wood Crees who treated them with some contempt; the present native population is mostly Chipewyan with some Crees; the Slavey nation now lives much farther west.

The Hudson's Bay Company established a post in Fort Smith (so named after Donald Alexander Smith, a Resident Governor) in 1874; although many great explorers were acquainted with the area long before then. These include Samuel Hearne, who travelled on the east banks of the Slave river for some forty miles on his return from the discovery of the Arctic Ocean; Alexander Mackenzie and Peter Pond, the latter two being servants of the Northwest Company and fierce rivals of the H.B.C.; Captain John Franklin and Lieut. George Back. The river and the country about Fort Smith is very much as it was when the intrepid explorers portaged their canoes and supplies on their historic journeys.

The four rapids, from south to north, are named Cassette, Pelican, Mountain and, just below the town of Fort Smith, the "Rapids of the Drowned." The latter is so named after five men lost their lives in 1788, in company with trader-explorer Cuthbert Grant.

As time went by, a portage trail was used spanning all the rapids and in modern times a good road covers this district from Fort Fitzgerald, south of Fort Smith, to Bell Rock to the north.

Fort Smith today has all the appearance of a modern Northern Town without denying its ancestry in the rugged past. There are still a fair sprinkling of Oldtimers who, among other things, made the journey down to a very primitive Edmonton, by dogteam!! The pioneers have left their mark and their families. To those who visit is offered the experience of a brush with the past, besides some exciting features of the present.

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Ice breakers opening up marine transport corridors

Stretching 39,320 miles along the Arctic frontier, Canada's third coast is the country's longest.

It spans the top of the world from the Beaufort Sea to the Atlantic Ocean, and extends Northward into the grinding pack ice of the Arctic Ocean to within 500 miles of the North Pole.

The Arctic coast has never played much of a role in Canada's development, but it has always been a part of the nation's consciouness, part of the image of the country and a key element in the mystique of the Northern dream.

Now there are growing signs that Canada, by virtue of short-sighted and timid federal governments, may be on the brink of losing control of her maritime regions—waters that could be vital to the future expansion of the economy.

Here are the reasons why.

The shipping season on the nation's longest coastline is the shortest in the world.

With the exception of a few brief weeks in the late summer and early fall, Canada's Arctic is closed to vessels by the thick layer of sea ice that covers the waters for eight long months of the year.

Until recently, the fact that Canada's Arctic coastline had remained largely inaccessible to normal maritime operations meant little in terms of national priorities.

Except for the annual sprint across Hudson Bay by freighters racing to move grain from the Prairie railhead at Churchill, Manitoba to European ports before freeze-up, the major proportion of the nation's maritime attention has been focussed on the more southerly ports of the east and west coasts.

The Arctic coast, bordering a vast and empty hinterland of 1.5 million square miles, was a place for explorers, not merchant seamen. It was left for more than a century to whalers, the solitary Hudson Bay Company supply vessels, the old military or scientific expedition in summer, and the small craft of the seal-hunting Eskimos.

But the wastelands have turned out to be an elaborate disguise concealing a natural resources treasure chest of unmeasured richness, and the Arctic waterways are on the threshold of becoming the most important maritime area in the country's history.

Exploration projects running into the hundreds of millions of dollars are finding immense petroleum reserves in the High Arctic at a time when the industrial nations are scrambling for energy and the oil producing countries of the Middle East are jacking up their prices in line with world demand.

At least six mineral deposits of great size have been delineated in the Arctic Islands and along the coastline of the Northwest Territories at a time when the United States Geological Survey warns that country faces an impending "mineral crisis" as known deposits are depleted.

And modern marine technology may make the Northwest Passage the route to the Orient that early explorers expected — a transportation corridor from Japan to Europe.

Petroleum, of course, is the major catalyst in the whole development potential of the Arctic.

It was oil, discovered at Prudhoe Bay on the Alaska coast, that sparked the epic voyage of the 115,000 ton tanker Manhattan through the Northwest Passage in the late summer of 1969.

The prospect of even larger ice-breaking tankers ranging in size to 250,000 tons lends to the possibility of marine transport corridors in the Canadian Arctic.

Those finds are all within 4,500 miles by sea from all the major European, Asian and North American petroleum markets. That distance compares with distances of 14,000 miles from th Persian Gulf to Europe or North America, and 8,000 miles to Japan.

Such shipping would have to be year round to be economically feasible, and two things would be required to make it possible; new types of winter-capable ice breakers, and super ship with the ability to smash through the ten foot thick sea ice.

It was just such future possibilities, foreshadowed by the successful Manhattan voyage, that triggered a belated federal government attempt to assert sovereignty over the Arctic waters that had been ignored for so long.

The Arctic Waters Pollution Prevention Act of 1970 asserted limited environmental sovereignty for Canada over the Northwest Passage up to 100 miles off shore, identified pollution control zones, laid down minimum safety standards for vessels, and made provisions for fines to vessels contravening safety regulations.

A number of countries, foremost among them the United States, have rejected the legislation's validity in international law on a formal basis.

The United States argues that Canada has no right to unilaterally regulate pollution controls on the high seas and that the Arctic Ocean is clearly part of the high seas.

At present the Canadian action hasn't resulted in any serious international disputes, for the reason that virtually no commercial vessels can operates in the waters without ice breaker support.

But the days are soon approaching when ships will be moving through the Northwest Passage.

"You must know constantly what is going on in a territory over which you claim sovereignty, you must be able to occupy the territory and most important, be seen to exercise a control over the area.

"It's not realistic to claim sovereignty over an area which ultimately you can't defend."

Colonel Guy points out that Canadian military ships have been in the Arctic for many years—but only on summer operations . . . Winter operations have been limited to the Davis Straits.

"And you must bear in mind that land and air forces maintain a degree of capability for Arctic operations."

Unfortunately, the successive federal governments have missed the boat in terms of providing any capability for remaining year round in the Arctic waters we say are ours.

There is not a single ice capable ship in the Canadian military inventory, and there hasn't been one since the Labrador was taken away from the navy and turned over to the Coast Guard in 1958.

Even the Coast Guard, responsible for patrolling Canadian waters, is a half-hearted attempt.

There are only four ice breakers of 10,000 horsepower or more, the generally accepted minimum for operating in the heavy ice conditions of the Arctic.

One of them, he Labrador, is almost 20 years old. The others are the Sir John A Macdonald at 15,000 horsepower, the Norman McLeod Rogers at 12,000, and Canada's biggest—the Louis St. Laurent at 24,000 horsepower.

None of the four big ice breakers are capable of operating in the Arctic under winter conditions, remaining largely as support ships for summer shipping, and the way things stand there won't be any winter-capable ships until the end of the decade or later.

That may be too late.

While Canada was fussing about re-fitting the obsolete aircraft carrier the Bonaventure, which it was later to sell for scrap, the other Arctic nations were planning ahead for development of ice breaking capacity.

The Russians, starting in 1962, purchased five ice beakers from Sweden in the Moskva class — 22,000 horsepower.

Three more ships of 23,000 horsepower are due for delivery from Finland's shipyards in 1974, 1975 and 1976.

Meanwhile, the Russians have developed a whole new class of super ice breakers.

Biggest in service so far is the Lenin, nuclear powered and carrying a crew of 1,000 men. She generates 44,000 horsepower, can sail for 18 months without refuelling and is capable of cutting a continuous 100 foot wide swath though solid pack ice eight feet thick at speeds of three to four knots.

Her sister ship is the Arktika, powered by twin nuclear reactors that generate 30,000 horsepower.

Projected for development in the immediate future are two more nuclear powered ice breakers in the 30,000 horsepower range, and one nuclear powered monster that will generate 80,000 horsepower.

The United States is not far behind the Russians. It operates seven ships of 10,000 horsepower, as well as ships in the Glacier class of 21,000 horsepower.

The Americans hav budgeted $89 million for development of four new ice-breakers to match the Russian Moskva class.

And due for delivery by 1975 are a pair of ice breakers which will be able to generate 60,000 horsepower.

The Canadian government, on the other hand, is still dragging its feet in developing a fleet of ice breakers which can operate in the North under winter conditions.

There is going to be another ice breaker of the Macdonald size built, says George Elliot of the Arctic Transportation Agency, but the government is still involved in a study as to what kinds of ice breakers are needed.

"Do we need one huge one, two intermediate ones or a whole fleet of small ones? We're quite involved in ice breaker studies using data from the voyage of the Manhattan and the Macdonald.

"The major problem in the High Arctic is that we don't have the statistical data. We're trying to build the data each year."

But, while Canada will be ready to tender for a polar ice breaker within two years according to W. A. O'Neill of the Ministry of Transport, such a ship will take an estimated five years to build.

That means Canada won't have an ice breaker of any size until at least 1980, five years after the Americans and Russians have been in operation.

Mining merger agreement

VANCOUVER (CP) — Cyprus Mines Corp., and Dynasty Explorations Ltd., have announced they have reached agreement in principle to amalgamate Anvil Mining Corp. Ltd. and Dynasty Explorations Ltd. to form Canadian Exploration, Development and Producing Co.

The new company will be based in Vancouver

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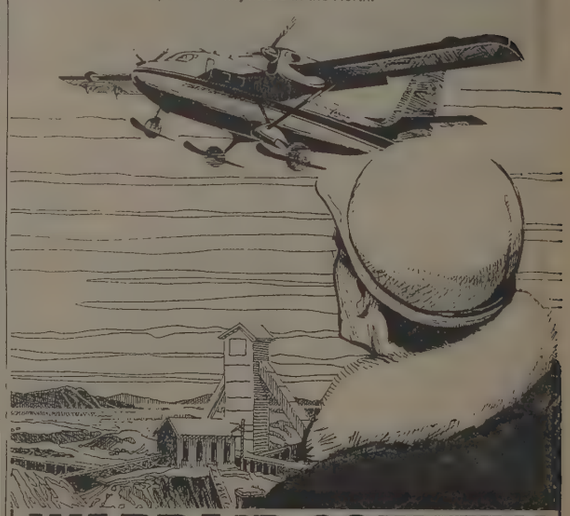

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Liquor still fastest selling item in the North

The North is one of those world areas that has been hurtled from the Stone Age into the 20th Century in the blinking of an historical eye.

The pace of development that rocketed people from the simple economy of the hunting and gathering band to the complexities of a wage economy and a society based on credit ratings seems certain to continue and even to accelerate in coming years.

Unfortunately for many of the people who live in Canada's vast northern territories, the Arctic frontier is subject to the same kinds of social phenomena that accompany fast development in other areas of the world.

That means social problems, triggered by a society and a life-style that is in upheaval after thousands of years of relative stability.

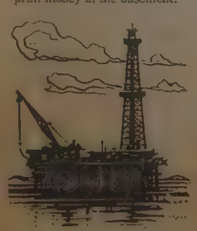
Sadly for Canada's North, those problems seem destined to accelerate at the same pace as development.

Perhaps the single best index of social disruption is that of alcohol abuse. In one sense it is a symptom of much deeper social and psychological tension; in another it is the root evil from which a number of other destructive problems spring.

Alcohol, acknowledged by government and medical authorities alike as the ugliest phenomenon Northerners are likely to be faced with in coming years, is still the fastest selling item North of the 60th parallel.

The 18th Annual Report of the Northwest Territories Liquor Control System, outlining sales and consumption patterns for 1972, cheerfully announced that record profits had been achieved by the territorial government for the tenth year in a row.

In fact, looking at the statistics offered by the bureaucrats, it is clear that selling liquor in the North last year was like having a licence to print money in the basement.



Gross profits added up to 47.7 per cent of sales, or $3.1 million out of total sales of $6.5 million. All that despite the fact there has been only one price increase in the past decade — a nine per cent hike in 1968.

Sales continued to expand at a phenomenal rate — better than 16 per cent for the fourth year in a row. Biggest jump was in Fort Simpson which voted in favor of liquor outlets a year ago. Sales there increased 33 per cent in one year.

Hard liquor continued to earn the largest proportion of the profits with sales of $3.1 million. Beer sales were $2.7 million and wine sales were $565,000.

Territorial councillors have repeatedly expressed concern at the difficulties caused by alcohol abuse in the NWT, and they have good reason.

For these liquor profits the territorial government is paying an increasingly heavy price in social deterioration and personal tragedy.

Mr. Justice William Morrow of the Supreme Court of the NWT points out that more than 80 per cent of the cases that appear before him are liquor-related offences.

Virtually all of the inmates at the Yellowknife Correctional Institute, convicted for crimes ranging from theft to violent manslaughter, had alcohol involved in their actions.

In recent years the Northern Health Service has repeatedly reported that alcohol abuse is the cause of the majority of violent and accidental deaths in the NWT as well as a major factor in the horrendous infant mortality rate.

And the grand irony is that the alcohol tearing the social fabric in native communities, causing widespread unhappiness and despair, is the single biggest revenue earner for a territorial government that claims to have the welfare of the people as its first priority.

This year liquor sales are expected to earn $2.7 million for the territorial government — $50,000 more than fuel taxes, $1 million more than employee housing rentals, just under $2 million more than recoveries from the federal government for maintenance of the Mackenzie Highway system.

Liquor sales alone generate almost as much revenue as the combined total of taxes on fuel oil, school levy taxes for hamlets and capital taxes.

One answer to the booze problem has been a renewed assault by the territorial government in the information area, with development of a slick comic-book approach to alcoholism.

But the evidence is clear. The problems are going to get far worse before they ever get better.

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Greatest engineering feat

A natural gas pipeline across the North Slope of Alaska from Prudhoe Bay and down the Mackenzie Valley promises to be the greatest engineering feat in North American history.

The logistics alone, discounting the critical engineering problems, will dwarf the transcontinental railway projects of Canada and the United States in the late 1800's.

For the northern portion of the pipeline, which must cross tundra, permafrost, rugged mountains, muskegs and ice-scoured river bottoms, more than a million tons of pipe will be required.

Up to 15,000 men will have to be airlifted into the most remote areas to work on the pipeline route, and with them will have to come prefabricated bunkhouses for spread camps, recreation units, cook-shacks, capable of turning out several thousand meals a day — at the equivalent of a busy 450-bed hotel in a big city.

To keep the equipment operating and the bunkhouses warm during bitter winter months, a total of more than 50 million gallons of fuel will have to be moved to the pipeline route and its construction camps.

Faced with those massive logistics some people are asking whether pipeline engineers will really have the time or inclination to spend many moments considering the potential impact of construction on wolverines, Arctic fox, grizzly bear and caribou.

The maintenance of environmental quality will undoubtedly be a key issue at both government and public hearings on the subject when Canadian Arctic Gas seeks permission to go ahead.

But this is one major project in which the environment intrudes into all aspects of planning to the extent that engineers are admitting they must seriously consider the matter.

Arctic pipeline will require protecting the installation from the environment as much as protecting the environment from the installation.

The successful operation of the pipeline is locked into a mutual dependence that the environment will not be degraded.

Because a natural gas pipeline will have to pass through permafrost, it will have to ship refrigerated gas in order to avoid erosion which would seriously damage the transmission system.

The main problem will be that the thermal erosion, which could result from the stripping off of the vegetation which acts as a blanket of natural insulation.

The question of both revegetation along the right of way and the refrigeration of gas during transmission are more matters of sound engineering than concern for the environment.

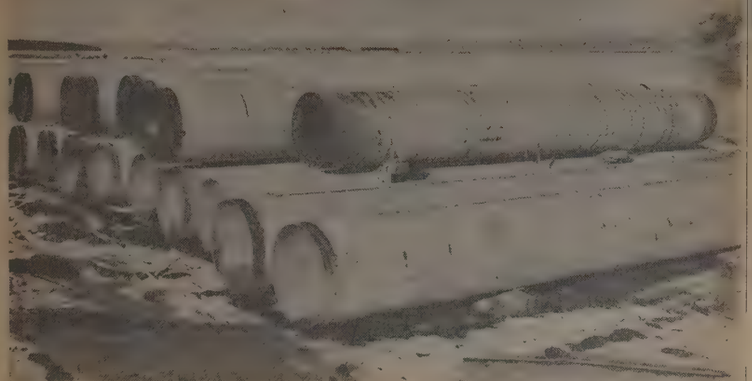
Another major concern will be how to keep the natural gas chilled during transmission through more than 1,000 miles of Arctic and sub-Arctic line.

To obtain cold gas, engineers will rely on a phenomenon known as the Joules-Thompson Effect, which means that expanding gas cools during the expansion process.

Flowing gas will drop five to 16 degrees after passing through an expansion chamber, and that should take care of the heat generated by friction as it moves through the pipe.

Pipe used in construction of the line will be between ⅝ and ¾ inches thick and will have 65,000 to 70,000 pounds per square inch yield strength.

For construction of a bridge, steel would normally have around 40,000 pounds per square inch yield strength.



Start of the $3 million Arctic pipeline test facility at Sans Sault rapids on the Mackenzie River in NWT

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First north oil well 4,800 feet up Pointed Mountain

High on the shoulder of a jagged Northern crag, the first commercially productive gas field in the Northwest Territories almost defies the imagination.

There's the location for starters.

More than 4,800 feet up rugged Pointed Mountain, which towers over the rolling countryside of the Liard River country, the first tap well perches like a signpost of modern technology as it advances into the country's last frontier.

That's how far up the mountain the roughnecks of Amoco had to climb to sink a well into the rich natural gas formation that lies about 25 miles west of the tiny hunting and trapping town of Fort Liard.

Just North of the corner formed by the British Columbia and Yukon Territory borders, the Pointed Mountain gas field involves the kind of rugged engineering feat that is becoming commonplace for industry above the 60th parallel.

From the cockpit of a light plane, the only year round link the Liard area has with the outside world, the new gas field is an impressive sight.

Roadways cut the mountainside in raw, red diagonals, and clusters of tanks are balanced precariously on gravel and earth pads, carved from the almost sheer inclines.

But the operation has implications equally important as the feat of engineering. It can be viewed in social terms as well, as a microcosm of what may eventually happen in the Mackenzie Delta and river valley.

There is all the distance between the paternalistic trapping economy of the 19th Century and the aggressive competition, wage employment and the demand for job efficiency and specialization that marks the super-fast 20th Century.

The Pointed Mountain gas field meant a short term opportunity for the Slavey hunters and trappers of Fort Liard, a quick chance to earn 20th Century wages at laboring and construction jobs.

To the disappointment of hopeful government officials, however, the first gas field to go into production in the Northwest Territories has provided no permanent jobs for local natives, or indeed for Northerners.

Terry Forth, chief of Northwest Territories' employment for the territorial government, is concerned because the first active gas plant in the North should be an example of the good things development can bring.

Although up to 100 men are involved in construction at Pointed Mountain, the project has turned out to be a graphic example of a capital intensive industrial development of the kind that is certain to take places in the Mackenzie Valley.

When the multi-million dollar project wound up there were less than 10 permanent jobs created. The jobs were technical in nature and the men hired to fill them are rotated into and out of the site from the B.C. town of Fort Nelson.

Dismayed territorial government officials, who have so far been negotiating fruitlessly with the company involved for the arrangement of training programs for native Northerners from Fort Liard, point out that crews could just as easily be rotated to the site from Fort Simpson in the N.W.T.

The implications of the situation for the future development of natural gas resources in the North are enormous.

A Mackenzie Valley pipeline, seen by some as the solution to a critical unemployment level that runs as high as 80 per cent in many of the communities scattered down the Northern route, will require up to 15,000 men for construction.

But federal officials estimate the eventual permanent work force will be only about 150. That means a massive boom and bust cycle for the largely unskilled native work force in the Western Arctic.

The men working at Pointed Mountain operate a dehydration plant that removes water from the gas in four man-shifts rotating through an eight day on, six day off cycle.

The dehydration plant is really the heart of the gas field. Four wells in the area lead into a pipeline grid feeding gas to the plant.

A gathering network of pipe ranging from two inches to 12 inches is designed to collect and deliver up to 190 million cubic feet of gas through a 20 mile system every day, and almost 1,000 barrels of water a day will be removed from the gas.

Roughly 30 miles of 18-inch pipe have been laid down to carry gas to British Columbia where it will be fed into a pipeline from the Beaver River gas field and transported to a sweetening plant at Fort Nelson.

The gas is destined for markets on the western seaboard and will be moved to the Vancouver-Seattle area by Westcoast Transmission.

The irony of the whole operation at Pointed Mountain is that during the construction phases of the gas field, company officials were reasonably happy with the performance of workers recruited from Fort Liard.

Yet despite promises by federal officials that employment benefits for native people would be a regulated pre-requisite of resource development in the North, those same workers are now out of a job.

In fact, one federal government spokesman in Yellowknife expressed some bewilderment recently with regard to exactly whose responsibility is the question of native employment.

"Pointed Mountain and the department of Indian affairs and northern development aren't really involved with each other any more," said the government man. "We only come into it during the exploration and development phase."

One of the problems expected to face pipeliners, government officials and natives during construction of a Mackenzie Valley line did not occur at Pointed Mountain.

That was the problem of labor unions and the ability or inability of natives to come up to union qualifications for membership.

At Pointed Mountain it was an open shop operation. Men from Fort Liard were able to earn union wages without running into pressure from organized labor over membership.

Labor problems are expected to be one of the significant problems when it comes to the hiring of Mackenzie Valley Indians for pipeline construction work.

Most men in the effective labor force have not completed more than a few years of schooling and many have had no formal training in what skills they have learned.

Determining their actual qualifications may turn into a thorny and contentious issue if union standards clash with federal hopes of giving natives first refusal of jobs that come up.

Meanwhile, at Fort Liard, the presence of the Pointed Mountain field development has raised some uncomfortable questions for both government and industry alike.

Workers from the settlement were able to earn up to $900 for several weeks work during construction—the kind of income a man can expect from several months on the trapline, even in a good season.

And that fact creates the big social question that so far remains unanswered.

What happens to the men of Fort Liard who have been introduced to a wage-type economy now that the available employment has disappeared?

After eating bunkhouse meals and drawing a weekly pay packet, returning to moose meat, fish and credit at The Bay is hardly an attractive alternative.

A trapping expedition at 50 below zero is even less attractive.

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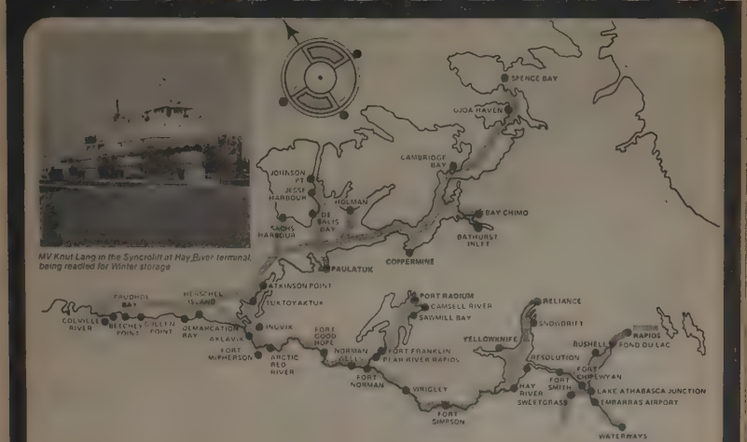

MV Knut Lang in the Syncrolift at Hay River terminal, being readied for winter storage

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Eskimo worker proves an asset on oil rig

Hiring Eskimo workers have substantial side benefits for oil companies.

Take the situation that arose recently at Panarctic's Kristoffer Bay drill rig in the High Arctic.

A polar bear wandered into the site on Ellef Ringnes Island, and it refused to be driven away under any circumstances.

With workers worried about their skins every time they stepped out the door, and the bear happily disrupting camp activity, supervisors at the drill rig found themselves on the horns of a dilemma.

Polar bears are protected animals, and the shooting of one, even under the most threatening of circumstances, is guaranteed to generate the wrath of RCMP, game officers, government and conservationists alike.

But fortunately for Panarctic, an Eskimo was working for the consortium at Rea Point, and he was dispatched to Ellef Ringnes on the next plane.

He showed up with a hunting rifle and two shells and said he'd been sent up to solve the bear problem.

Alarmed at the skimpy ammunition allowance, rig supervisors tried to press more bullets on the Eskimo hunter, but he cheerfully refused, strode out to shoot the bear and brought back the second bullet as a souvenir.

Then, valuable hide in his possession, he boarded the next plane back to Rea Point and work.

At other High Arctic sites the hunting habits of Eskimo oil workers have caused some bad feelings among animal-loving co-workers from Edmonton and Calgary.

At Kristoffer Bay the drill site was frequented by Arctic foxes — until the first crew arrived from Pond Inlet, a trapping community on Eclipse Sound, 500 miles North of the Arctic Circle.

Fire-arms are prohibited on Panarctic sites by company regulation, but Eskimos don't need rifles.

PWA's container shipping 'igloos'

Pacific Western Airlines have helped in the development of the North by using modern shipping methods. Shipping container 'igloos' instead of loose freight assures their customers of a streamlined service which delivers the cargo without loss or pilferage and a minimum of breakage. Their Boeing 737's can carry eight containers at once with a payload of 40,000 pounds. Container shipping allows the plane to be loaded in 45 minutes instead of several hours under the old system.

Ecology a prime concern in North

The brittle qualities of Arctic and sub-Arctic ecosystems are one of the major headaches of engineers and designers faced with large-scale construction projects in the Canadian North.

Scars from the past are grim reminders of just how sensitive the environment becomes the farther North construction pushes.

Seismic lines etched out by bulldozers and heavy tracked vehicles up to 10 years ago still cross-hatch a tundra that has not recovered and may not do so for 100 years.

Stark washouts and eroded slashes show where quick winter roads were cleared out before anyone was really aware of what a fast spring thaw would do to temporary roadbeds.

Things are changing, largely in response to growing public concern over environmental issues in the South, and increased care and more stringent legislative safeguards make difficult projects even tougher for engineers.

The problems faced by builders punching through a Mackenzie Valley highway are expected to be monumental.

Fortunately a colossal amount of work has and is being done on environmental questions along the proposed pipeline route.

A federal government that has stated it intends to recoup some of its construction costs at the expense of pipeline companies can also be expected to make full use of environmental data gathered by the same consortiums.

There should be a lot to work with.

Studies of the impact of pipelines on birds, fish, game, the ground and vegetation are being conducted by the pipeline consortiums. Presumably much of the data collected will be applicable to the construction of a road.

The major difficulties faced by the government in terms of environmental impact will be the problems of permafrost and the availability of gravel for constructing and surfacing.

Permafrost problems are anticipated in a variety of locations that cannot be predicted in detail because distribution and depth of permafrost is largely controlled by local conditions.

To the southwest of the Mackenzie River, permafrost generally occurs in islands of variable size, while on the east bank of the river it is associated with a great variety of terrain, frequently occurring as lenses in unfrozen ground.

Permafrost is far from an ideal base to build on because if the temperature is altered enough, the ice melts away from the suspended soil, sometimes reducing volume in a given area by substantial margins. It can also trigger devastating erosion if not handled correctly under sub-Arctic conditions.

The question of gravel supplies for 700 miles of highway is also a serious one. Deposits occur only irregularly along the proposed route, and to borrow gravel from river bottoms and creek beds would severely degrade the waterways.

Dangers to wildlife and other fauna in the vicinity of a highway stem not so much directly from physical construction as from the indirect consequences of improved access to wilderness areas.

Construction during warm months would increase forest fire risks in extremely remote areas, and there is the danger of harassment or indiscriminate hunting by construction crews with little other recreational activity.

Visitors attracted by the improved access could be detrimental to wildlife, and excessive hunting might be stimulated by increased density of mammals attracted to new browse and the forest edge created by the road.

Bears, wolverine and Arctic foxes might be attracted by dumps, stored food or simple curiosity — and be decimated as a result.

Strict fire control, controlled access to wilderness areas and strict wildlife management are probable solutions to these problems.

But the main unknown remains the long-term effects of a highway, and the pipelines that will follow, on the animal life in the area.

There are several possibilities.

At first most animals may avoid direct disturbance, then return to former ranges and habitats. Later, however, there could be a cumulative effect of noise from the road, low-flying aircraft and construction crews.

This could gradually drive animals farther and farther away from the inner Mackenzie Valley, the ultimate effect being partially displaced habitats of wildlife and waterfowl.

Construction might also damage fish environments by changing the temperature regimes of natural bodies of water to affect fish and their supporting food chains. This is felt to apply more directly to pipeline construction, however.

One small mammal that could be seriously harmed is the Arctic fox. These animals normally burrow only in loose granular deposits, and their dens concentrate in sand or light-gravel beds. In areas where these deposits are restricted, use of the material for construction could destroy fox denning areas, leaving them without alternative habitats.

Since gravel supplies along the highway route are limited the problem of destroying fox habitats could be a difficult one.

Then there are the difficulties imposed by construction crews. Federal land-use regulations apply stringent restrictions in the areas of water supply, sewage disposal and solid waste disposal, all of which will have to be met by mobile construction camps.

The federal government can also expect strong protest from conservation and environmentalist pressure groups in southern Canada.

Pollution Probe, an ecological watchdog organization at the University of Toronto, has already demanded a "freeze on the Arctic" in terms of development. The group put forward a five-point plan demanding a freeze on oil and gas extraction and scaling down of exploration; discussion of native land claims and no destruction of the natives' option to live off the land; restructuring of the department of Indian affairs and northern development; stiffer water pollution laws for the Arctic; and public hearings for a full and long-range northern development policy.

Pollution Probe argues that not enough is known about the fragility of the Arctic environment, and urges a two-year moratorium on petroleum and mineral development.

Pressure is also being brought to bear in the North. The Indian Brotherhood of the Northwest Territories takes the stand that "Native people in the South have not benefited from progress and development."

"Development can no longer be looked at in isolation from environment," the brotherhood said in a submission to the Canadian preparatory committee on the United Nations conference on the human environment. "Real planning and research must precede development," it argues.

"There is a cultural dimension to development which is being overlooked, and the United Nations conference on the human environment should be informed of this."

Mineral output expected to triple

Canadian mineral output is expected to triple and over-all production, exclusive of oil and gas, is expected to top $12 billion by the year 2000, Energy Minister Donald Macdonald, says.

"This represents a major new bloc of economic activity."

Mineral activities now provide the basis, directly and indirectly, for about eight per cent of all employment and 14 per cent of the gross national product, he said.

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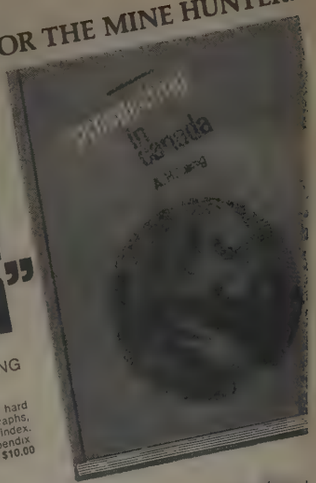

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Here, as thousands of mining men can attest, is one of the best textbooks ever written on prospecting in Canada. Although the demand for the previous edition was so great that it had to be reprinted three times in ten years, the demand for this latest (1970) edition, completely revised and expanded to include a sound introduction to the newest and most sophisticated prospecting techniques, is even greater. It is already in its second printing.

Prospecting in Canada has long been recognized as a standard reference work throughout the Canadian mining industry and abroad. It is used by mining company executives for general information, by specialists in one method of prospecting to obtain up-to-date general knowledge of other methods. It is also widely used for adult education courses and for independent study and is recommended extensively as supplementary reading for university courses.

For the mineral industry's front line troops, the prospectors — the mining hunters — this fourth edition of Prospecting in Canada is a must. Available from Publications Office, Geological Survey of Canada, 601 Booth Street, Ottawa K1A 0E8 — or any Information Canada bookshop.

The GSC also sells rock and mineral sets designed to assist in prospecting and identifies rocks and minerals submitted for examination.

Department of Energy, Mines and Resources, Ottawa
Minister, Donald S. Macdonald
Deputy Minister, J. Austin

Middle East looks to north oil

The unstable situation in the Middle East appears certain to remain unsettled in the foreseeable future, and with the unrest grows the likelihood of a major energy crisis for the industrialized west.

As the dispute wears on into its second quarter century of warfare the aspirations of the Arab states for a military solution continue to be frustrated, and the attractiveness of a non-military approach seems certain to look increasingly attractive.

The most obvious non-military instrument of foreign policy open to the Arabs is the economic manipulation of a world-wide dependency upon their oil reserves.

More than half the delineated oil reserves available to the industrial nations of the world lie in the Middle East—more than 248 billion barrels compared to 76.4 billion in all the western hemisphere.

The message is clear in terms of the national security of those nations counting on Middle East oil. Unless Europe, North America and Japan can develop alternate sources of petroleum supply in the immediate future, their bargaining position with relation to the Middle East suppliers will be uncomfortable indeed.

The organization of oil producing and exporting countries in the Middle East has already re-opened negotiations with buyers around the world, and they have made it clear they intend to drive hard bargains from now on.

Faced with the certainty of escalating oil prices, the world's big industrial consumer nations are looking with increasing interest to other sources of supply.

For the Europeans there is the North Sea field, and for the United States, by far the world's single biggest consumer, there is the Arctic.

What seemed, just a few years ago, like a fantastic gamble, is looking more and more like a sure thing with every new discovery in the Far North. In fact, it's beginning to look like the essential thing if North America is to avoid a crippling energy shortage in coming decades.

But the issue of the development of Arctic petroleum will probably not be the hot one that Canadian nationalists see looming on the horizon. American industry, in the crunch, has the immense Prudhoe Bay field on the North Slope of Alaska as the ultimate ace-in-the-hole.

In fact, the country that winds up counting most on oil and gas from the Arctic is most likely to be Canada herself.

Oil and gas provided 78 per cent of Canada's total energy requirements in 1971, and that consumption figure is almost certain to remain proportionately similar for some time to come.

Canadians used 1.5 million barrels of petroleum products per day that year, and 2.8 billion cubic feet of gas. On a per capita basis that breaks down to 906 gallons of petroleum products and 46,000 cubic feet of natural gas for every man, woman and child.

At the same time 84,000 barrels of crude oil were exported every day and 2.5 billion cubic feet of natural gas.

Some oil companies estimate that Canadian oil demands will almost triple to 4 million barrels per day by the year 2000.

All of which adds up to greater incentives for exploration and eventual development of whatever reserves lie under the ancient, glacier-scoured rocks at the rim of the world.

Since the wild scramble that opened the decade, things have cooled a little in the Far North. Visions of a vast treasure-house of petroleum into which roughnecks simply had to sink pipe have given way to a more realistic appraisal of the area's energy potential.

Private industry, however, clearly thinks it is onto something big at this stage of the game. Imperial Oil spent a grand total of $23 million in Canada's western sedimentary basin in the three decades between 1917 and 1947. So far the company has spent $100 million searching in the Arctic — most of it around the mouth of the mighty Mackenzie River.

Ronald Ritchie, then senior vice-president for Imperial, told the Royal Society of Canada in June last year that:

"In oil and gas Canada has today potential supplies which are large relative to our current domestic needs, and available export markets which are also large."

What he was getting at was the fact that Canada will likely have to develop the energy resources of the Arctic to meet its own demands as a nation, but that it will also have available export markets that will help pay for the cost of development.

Without those export markets and the influx of capital they would bring, Arctic oil and gas could only be developed at higher cost to Canadians as a whole, with those high costs reflected in the pocketbooks of the citizens in terms of gasoline, heating fuel and petroleum products prices.

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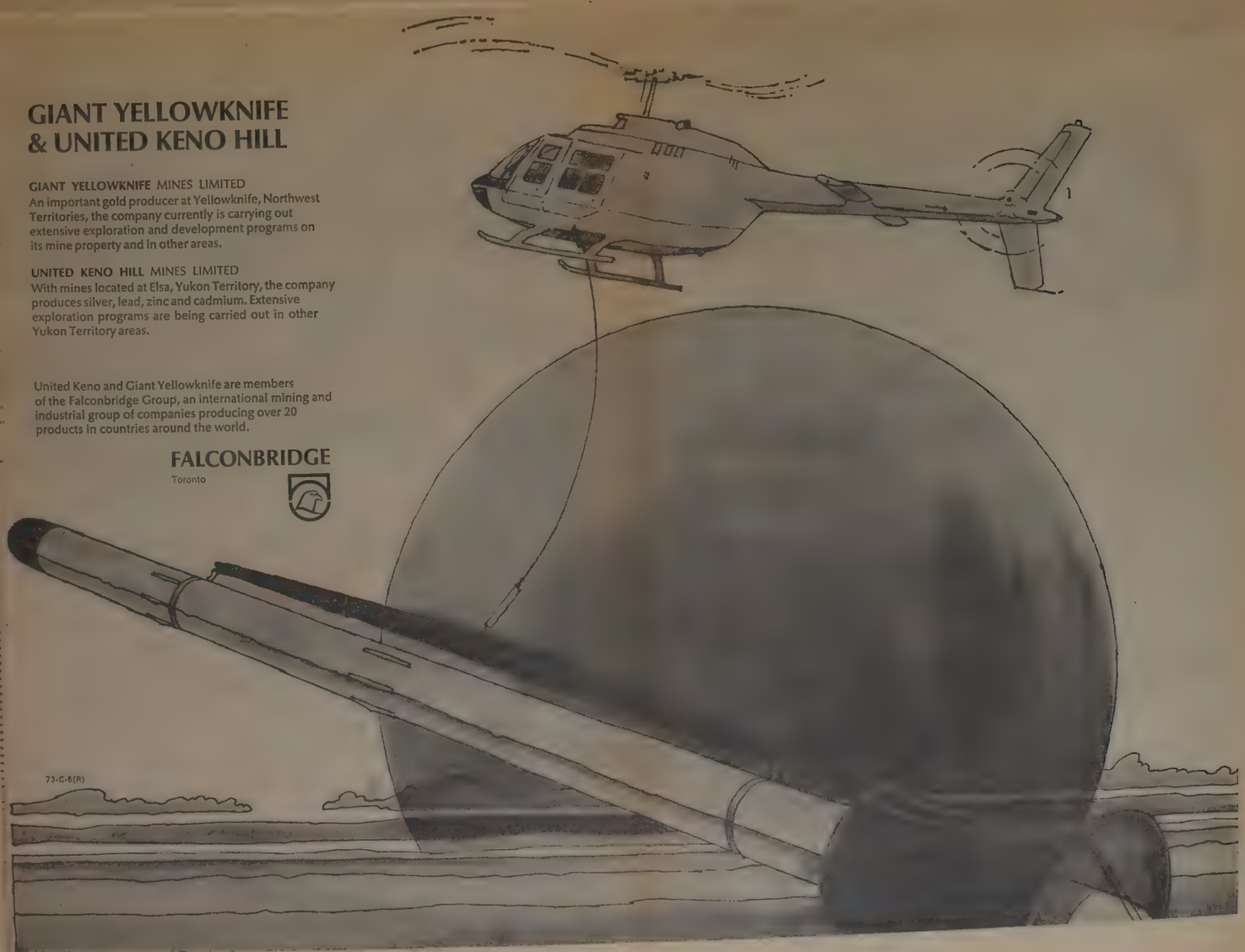

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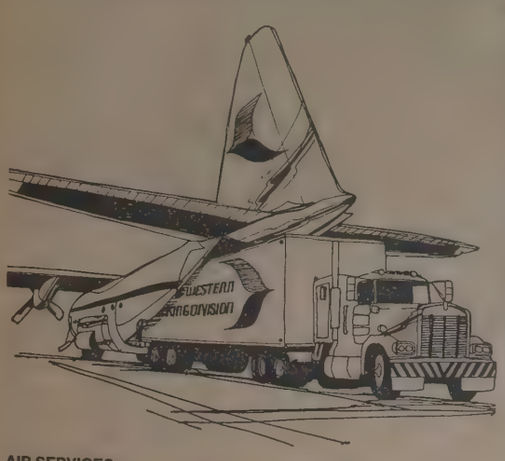

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Arctic Navigation and Transportation Ltd. was formed by RivTow Straits Limited of Vancouver and Trimac to operate a marine service on the Mackenzie River and its tributaries and Arctic waters. Arcnav's subsidiary, Lindberg Transport Ltd., operates a fleet of barges and tugs constructed for both general freight and petroleum product movements.

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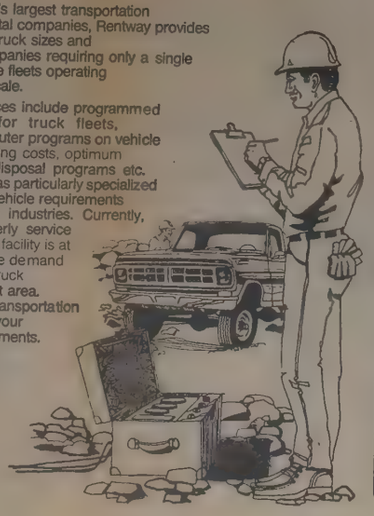

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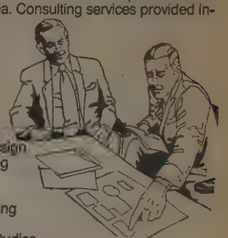
(12) Transportation Equipment Planning



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Mackenzie River is lifeline to Fort Wrigley inhabitants

Just as it was hundreds of years ago, before the white man first set foot north of the 60th parallel, the Slavey Indians of tiny Fort Wrigley live in time with the slower rhythms of the land and the seasons.

The main street of the settlement is still the gliding, olive-drab highway of the Mackenzie River, and the 175 inhabitants, still take much of their livelihood from the land in the time-tested manner of their ancestors.

They hunt moose and bear, and trap for the prime pelts of wolf and fox in the dense forests and mountains.

Snug log cabins are scattered along the steep river bank, nestling among thickets of willow, birch and spruce.

Except for the planes that arrive infrequently at the grassy meadow passing for an airstrip, the settlement is comfortably cut off from the tumult of the 20th Century.

At Fort Wrigley the river is the lifeline to the outside. It is communications, supplies and mobility.

What the Mackenzie River is to Wrigley, so it is to the entire valley stretching more than a thousand miles over the curve of the earth from Fort Simpson beyond the horizon to the shores of the Arctic Ocean and the grinding polar ice pack.

Even today, in the time of inertial guidance systems and rocket-like Lear jets, the river retains an aura of mystery and paradox that infects the people who rely on it.

The Mackenzie is the great marine highway that carries the year's freight and supplies — from diesel generators to beer — to the settlements of the western and central Arctic.

During the brief explosion of life and activity that is the northern summer, the muffled thunder of powerful ships can be heard for miles on the 2,350-mile river and its navigable tributaries.

More than a quarter of a million tons of vital supplies and equipment moved over the waterway from the Hay River railhead last summer.

But more often than not, even during the feverish mercantile activity of the Northern Transportation Company and Kaps Transport, the only sound on the vast river is that of a solitary loon and the background whine of the mosquitoes.

That is the paradox of the Mackenzie. While the river is the umbilicus that connects 10 settlements to civilization, it is also the buffer that keeps civilization at bay.

Travel down the river, through spectacular and awe-inspiring terrain, is something that the stopwatch society of the South can afford only as a $900 holiday aboard the cruise ship Norweta.

Making the arduous trip from Fort Simpson to Wrigley in an 18-foot freighter canoe is something that's left to the people of the valley.

Soon all that will end.

A Mackenzie Valley highway will be the beginning of the end of a way of life.

The highway will begin at Fort Simpson, a picturesque town of 750 located at the confluence of the Mackenzie and the racing Liard River.

Fort Simpson is the oldest settlement still occupied along the river. It was founded in 1804 by the North-West Company as the Fort of the Forks, and was renamed in 1821 after Sir George Simpson.

The settlement was a great fur-trading post that tapped a wide area, famous for catches of beaver, marten, wolverine and wolf. Some trappers in their lifetime brought in better than $100,000 worth of furs.

Between Fort Simpson and the oil refinery town of Norman Wells are two of the tiny, isolated settlements that will be most traumatically affected by a highway.

These are Wrigley and Fort Norman, located high on the north bank of the Mackenzie near the mouth of the Great Bear River flowing out of the lake of the same name.

Fort Norman is another old trapping post although it has achieved some importance in recent years as a staging area for supplies going up to Great Bear Lake to provision Fort Franklin and several mining camps.

Norman Wells, unlike other river settlements, grew up around a mineral extraction industry following discovery oil wells drilled in 1920.

A small refinery with a capacity of 300 barrels a day was built at Norman Wells, and markets boomed, culminating in the Canol project of the Second World War which carried crude oil to Whitehorse on the Alaska Highway by four-inch pipeline.

North of Norman Wells are Fort Good Hope and Arctic Red River, with populations of 354 and 100 respectively.

Fort Good Hope, only 17 miles south of the Arctic Circle, was established in 1805 as a trading post in Hare Indian country. Even today, in the area of Colville Lake to the east, some of the Hare people live in the nomadic life-style on the land of their great-grandparents.

Arctic Red River, 1,100 miles North of Edmonton, was another fur trading post established 100 years ago. It was supplied by Hudson's Bay Company York boats from York Factory on Hudson Bay via Norway House and Methye Portage.

Farther North and into the delta country are Fort McPherson, Aklavik, Inuvik and Tuktoyaktuk.

Fort McPherson, a trapping community of 850, will be the meeting place of the Dempster and Mackenzie highways. It will, in a way, be history repeating itself, for the settlement was used as a key stagging area on a route linking the Yukon with the Northwest Territories. The RCMP dogsled patrols travelled from Fort McPherson to Dawson City in the Klondike gold fields.

Aklavik is located on the Peel Channel in the estuary of the Mackenzie about 70 miles south of the Arctic Coast.

It is here the river tugs and coastal schooners meet, and the settlement of 700 is famous as a muskrat trapping centre.

Inuvik population 3,500, was once described as a "toy-town" founded by the federal government between 1955 and 1961. There is no child's play about the place today.

This is the site of the frantic scramble to tap the petroleum reserves lying under the flatlands on the delta. Air traffic at the paved runway is heavier than some fair-sized communities in southern Canada.

At Tuktoyaktuk on the Arctic Coast straddled by oil wells, the boom has already begun. Imperial Oil has opened a staging site nearby.

Inuvik and the oil play appear to be the main motivation behind the building of the Mackenzie Valley highway, for a road will virtually fix pipeline routes to the south at the federal government's pleasure.

Jet planes, luxury bars, supermarkets and department stores at Inuvik are signals of what the highway will bring to the delta as the oil boom develops.

For the first time the people of the river settlements will be exposed to each other and the outside world.

Meanwhile, at Fort Wrigley and Arctic Red, the men still hitch their dogs to the bush toboggans and set out at 40 below zero to tend their traps. Women go about the household tasks of a simple life.

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Hunters, whalers now oilmen

Two small Eskimo settlements perched on the bleak shore of North Baffin Island are among the first to experience the enormous economic impact promised by the development of Arctic oil and gas.

At Pond Inlet and Arctic Bay, combined population less than 800, men who were hunters and whalers less than two years ago are bringing more than $200,000 in wages into their communities each year.

They are participants in a special hiring program designed to employ native people on High Arctic drill rigs scattered across the islands and peninsulas of the Far North.

The economies of Pond Inlet and Arctic Bay, more than 500 miles north of the Arctic Circle, have traditionally depended upon the hunting of sea animals — walrus, seal, narwhal and beluga — and the trapping of the white fox.

But current trends indicate Eskimo people are not prepared to accept the often unpredictable fluctuations in game and the threat of feast or famine that has always accompanied a subsistence on the land.

Nor are they happy with the welfare and government assistance that is available when times are thin.

The hiring program, initiated by Panarctic, the government-controlled consortium searching for High Arctic petroleum, is designed to give those men who want the often-gruelling work at drill sites an opportunity to move into the sphere of a wage-based economy.

And the people at Pond Inlet and Arcic Bay are cheerfully meeting the challenge of new ways as they sweep over the North along with discovery, exploration and development of mineral resources.

Government officials, the oil company, and Eskimo rig workers all seem enthusiastic over the program, which looks like the beginning of a smash success in the troubled area of job provision for northern natives.

A major complaint from Northerners in the past has been that the petroleum industry prefers to import skilled workers from southern Canada, particularly the western oil fields around Edmonton and Calgary.

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Romulus Lake oil discovery important

They call it Hot Weather Creek, although most of the year it is a black ribbon of ice dribbled across the drab and featureless tundra at the top of the world.

When it's not frozen solid the creek feeds the marshy breeding grounds of the countless millions of mosquitoes that annually turn what should be a few brief months of summer bliss into a time of torment for the tender-skinned.

The landscape, with its biting insects in the wan summers and its extremes of darkness and cold in the long, silent winters, could well be somebody's vision of an existential purgatory.

But it's more than that, despite the black humor of whoever named Hot Weather Creek, for just a few miles from the frozen trickle is the world's most northerly industrial outpost.

It is a hole bored more than two miles into the ancient, glacier-scoured tundra. They call it Romulus Lake discovery well, and it may just be the hottest oil prospect turned up so far in the frigid Arctic Islands.

Here, almost a thousand miles north of the Arctic Circle, 79 degrees and 53 minutes north to be exact, Panarctic roughnecks braving the cold and isolation have tapped what appears to be the first commercially feasible pool of oil in the Far North.

Even in the 24-hour daylight of the polar desert's midnight sun, the chill lingers through the short summer, and in winter the wind off the jumbled sea ice whips the chill factor down to a bone-rattling 75 degrees below.

All in all, Romulus Lake is rather nondescript for the only exciting oil discovery in the High Arctic.

There has been plenty of gas, and lots of oil in the Mackenzie River delta, but no oil other than Romulus in the torgidding geography of wind-blasted barrens and shattered rocks that jut from the frozen Arctic Ocean.

Oil was first tapped at 3,000 feet, and the diamond drills have bitten their way far deeper into the old stones of the North's huge sedimentary basin.

What makes the Romulus discovery so interesting, despite its remoteness, is its location on the bitter Fosheim Peninsula.

The only major break in the mountain chain that forms the spine of Ellesmere Island occurs where the Fosheim juts off the main body of the island.

That gives easy pipeline access to the east coast of the island, which is important in terms of transportation because of the fact that ice cover on Baffin Bay and Davis Strait remains light all year round.

Because of the currents which rip through the area, and because of a phenomenon known as the North Water which leaves 40,000 square kilometres ice-free year round, those waters are considered navigable by re-inforced ice-breaking tankers.

Some experts already see a fleet of such ships carrying Ellsmere crude to east coast refineries by the mid-1980s.

To others such optimism remains the wildest of speculation, but possibility of such developments remains real indeed, and will remain so as long as the energy shortage persists in the industrialized world.

Loading containers on freighter

All manner of Yukon-bound freight is transferred from ship to train at the ice-free port of Skagway. Southbound freight consisting of silver, lead, zinc and asbestos replaces the northbound cargo and the ship returns to Vancouver 950 miles to the south.

Hercules workhorse of Arctic

Nobody will be watching the Arctic oil play this winter with more interest than Bob Engle of Northwest Territorial Airways Ltd.

His plans to become the second Canadian-based operator of Hercules freight aircraft are locked into the pace of Northern exploration and development.

If things continue at the hot pace established in recent years, give or take some seasonal fluctuations, Mr. Engle will be able to get rolling with a project that took five years of fighting with federal officials before permission was received.

The Hercules, with a range of up to 2,000 miles and a lift capacity of 44,000 pounds, is the work horse of the Arctic because of its ability to plunk itself down on rough ice and gravel airstrips in almost any kind of weather.

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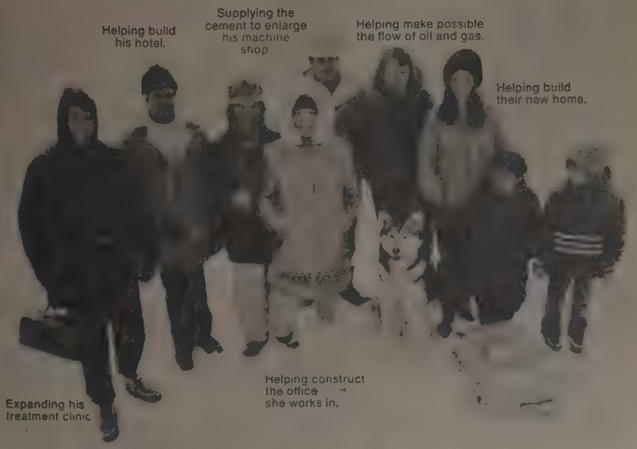
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Arctic oil and gas reserves underestimated

Oil and gas reserves in the Canadian Arctic will generate a cash flow of $63.2 billion over the next 30 years, and even then large areas will remain untapped.

That's the assessment of Dr. John Reed, senior scientist with the Arctic Institute of North America and a veteran of 30 years with the U.S. Geological Survey in Alaska.

The prediction comes in a comprehensive 82-page report on the future of oil and gas development in Arctic North America over the next 27 years.

Dr. Reed estimates that oil and gas from the Arctic Islands will be shipped to eastern refineries within the next 10 years.

He says liquefied natural gas will be shipped from the Arctic by 1982, and that supertankers will begin navigating the treacherous waters of the Northwest Passage by 1995, carrying Alaskan crude oil to the energy-starved Atlantic seaboard of the United States.

"The evidence accumulated over the past three decades indicates that the resources are so large that they will be significant not only to North America but also to the world," Dr. Reed says.

In fact, he speculates, Northern oil and gas reserves, from Alaska to the Davis Strait, are much greater than anyone has so far had the courage to suggest in print.

Total reserves on the North Slope of Alaska have been estimated at about 25 billion barrels of oil and 25 trillion cubic feet of natural gas. But Dr. Reed, who includes in his calculations formations offshore in water more than 30 feet deep, for which the technology of extraction has yet to be refined, suggests reserves will prove to be on the order of 100 billion barrels of oil and 497 trillion cubic feet of natural gas.

He predicts much smaller reserves in the Canadian Arctic, but points out that data on the areas North of the provinces is scanty compared to that compiled on Alaska.

The suggestion is that his estimates of more than 1 billion barrels of crude oil on the Fosheim Peninsula of Ellesmere Island alone are somewhat conservative.

Equally substantial oil and gas reserves will be developed in the Mackenzie River Delta, says Dr. Reed.

And soaring demands in the industrialized world and particularly North America will spur rapid development of Northern resources.

The introduction of these petroleum reserves into an energy-hungry world in which annual requirements in 27 years, at a conservative guess, will be 32 billion barrels of oil and quantities of gas equivalent to 12.2 billion barrels, can be expected to have substantial international effects, says Dr. Reed.

Oil and gas from Arctic North America, for example, will help curb the political ambitions of the Organization of Petroleum Exporting Countries (OPEC) which is dominated by the Arab nations of the Middle East.

OPEC has recently been hinting that member states may consider manipulating petroleum supplies to win concessions in foreign policy from dependent industrial states — particularly with reference to the United States.

Competition from development of the Far Northern petroleum resources will keep OPEC demands under control, allowing generous returns to those countries exporting petroleum while preventing the escalation of prices to the level of an international crisis.

Alaskan oil will go to Japan as well as the continental United States, while gas from the Canadian Arctic will go in some quantities to the European industrial complex as well as to Canada.

This, coupled with the export of some Russian gas to the United States, will help maintain world stability among the heavily industrialized super powers at a time of growing energy shortages.

It will also serve to bridge the gap between the exhaustion of world petroleum supplies and the development of alternate sources of energy.

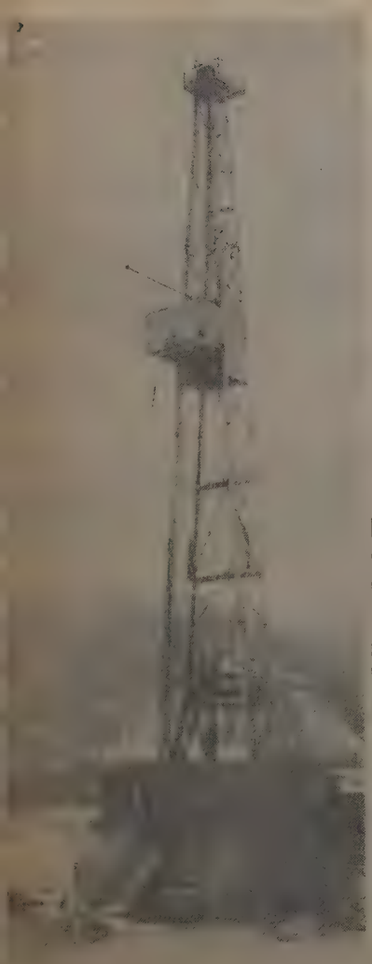
"While sources such as coal, nuclear fuels, geothermal heat, solar energy and possibly ocean tidal energy will supply increasing amounts, these will not significantly reduce the need for oil and gas until after the year 2000," Dr. Reed predicts.

Under increasing pressure from Canadian and American markets, a natural gas pipeline will be constructed down the Mackenzie River Valley, becoming operational in 1980. By 1982 an oil pipeline from the same Arctic coastal fields will be pumping crude to the south.

But contrary to the optimistic forecasts of government and some industry spokesmen, Dr. Reed predicts that oil and gas from Melville, Ellef Ringnes, King Christian and Thor islands will not yet have moved to market even 30 years from now.

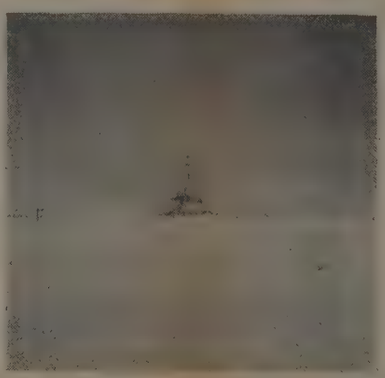
The technology required for delivery systems across the ice-scoured channels between islands and mainland will take at least 25 years to perfect, he says.

Industry will have to pay the cost of environmental protection in the Arctic, but this cost will simply be passed on to the consumer in the form of higher prices.



Pointed Mountain gas field

The Pointed Mountain gas field had the first natural gas production in the Northwest Territories. The field is located 30 miles from Fort Liard near the southwest tip of the Northwest Territories.



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TUESDAY, OCTOBER 16, 1973

Business Report

LES BUHASZ, *Editor*

BARGE FROM 'HELGA DAN' approaches Little Cornwallis Island where it will load 3,600 tons of lead-zinc ore from Arvik Mines Limited's Polaris project. Destined for metalurgical testing in the United States, the shipment represents the first of its kind since Martin Frobisher's 1577 expedition to Baffin Island and the possible beginning of a new era of development for the Canadian Arctic Islands. (See story, Page 6)

Conference will highlight northern mining industry

The sixth National Northern Development Conference will be held in Edmonton Oct. 31, Nov. 1 and 2.

This year's conference theme will be Mining and Canada's North a continuation of previous conference themes dealing with resource development in the North.

A concern for Canada's North and its orderly development is the expressed motivation behind the National Northern Development Conferences, which are held every three years.

The series was first conceived 20 years ago, and first convened in Edmonton in 1953. Since then the conferences have focused each time on a significant aspect of northern development.

The areas with which the conferences have dealt with in the past are:

1953 The Last Frontier in North America
1961 Canada's New Role in Resource Development and World Markets
1967 Man and The North
1970 Oil and Northern Development

Conference staff serve as volunteers, with some financing provided by the three levels of government and the business community. This year's executive committee chairman is N. A. Lawrence chairman, Associated Engineering Services Ltd.

As well, speakers to the conference come on a voluntary basis, with no financial payment for travel or expenses.

NORTHERN MINING

An important part of the conference agenda is the time used for panel discussions on subjects relevant to the larger theme of the conference.

This year five panel discussions will be included in the program.

Panel 1, The Mineral Potential of Northern Canada, will meet Wed., Oct. 31, and will be chaired by G. H. Finland, president of Branta Explorations Ltd. of Edmonton. Serving on the panel will be Dr. D. R. Derry, of Derry, Michener and Booth, a geological consultant firm in Toronto; Dr. A. R. Barringer, president of Barringer Research Ltd. of Rexdale, Ont.; D. R. De Laporte, vice-president, western minerals division of Falconbridge Nickel Mines Ltd.

Panel 2, Principal Minerals — The Global Situation, will also meet Wednesday, and will be chaired by Fred Peacock, Alberta Minister of Industry and Commerce. Serving on the panel will be Saburo Tanabe, senior managing director of Nippon Steel Corp.; Tokyo: Charles Bruce, vice president of DeGolyer and McNaughton, Dallas, Tex; and S. E. Jamieson, president and director of The British Metal Corp. (Canada) Ltd., Toronto.

Panel 3, Government and the Mining Industry, will meet Thursday, chaired by G. C. Hamilton, Chief Commissioner for the city of Calgary. Serving on the panel will be C. H. Mitchell, managing director of the Mining Assoc. of B.C.; J. V. Clyne, chairman of Macmillan Bloedel Ltd., Vancouver; and Jack Austin, deputy minister, federal department of energy, mines and resources.

Panel 4, also meeting Thursday, will discuss Moving Mineral Resources, and will be chaired by W. S. Ziegler, chairman of Inland Cement Ltd., Edmonton. Serving on the panel will be R. F. Moe, a mining consultant from Pacific Palisades, Cal.; R. A. Bandeen, executive vice president, finance and administration, Canadian National Railways; W. H. German, senior partner, German and and Milne, Montreal; and Ri-

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13663

Les Buhasz

...speaking of business

The high cost of war

While most military experts in the United States and Britain still tend to believe Israel will be the eventual victor in the current conflict with Arab nations, the economic costs of victory will be enormous—not only for Israel but also for the United States.

For Israel, the costs of the war will be measured in military equipment lost, manpower diverted away from gainful productivity and the need to replenish destroyed and worn-out supplies. For a small nation that pours 25 per cent of its gross national product into a military sector even during short-lived periods of peace, a long war can be financial disaster.

For the U.S., the price tag of the Middle East war will be measured in terms of pinched and more expensive energy supplies from the Arab nations. The Americans, having committed themselves to supply Israel with military equipment, now face insecurity of oil supplies from Arab producers who have threatened to cut off those who would aid the Jewish nation.

Following the Middle East war of 1967, there was an attempt to use Arab oil to pressure industrialized western countries to exert influence on Israel to give up occupied lands. That attempt failed partly because the world was not yet as dependent on Middle East oil as it has become in recent years and partly because the Arabs tended to bicker among themselves over the means to enforce their threats. Today, however, the oil weapon has much greater potential.

This year it has been estimated that the U.S. is importing one-third of the oil it needs to keep home furnaces, automobiles and industries operating. By 1980, the U.S. may have to buy half its oil needs. And a growing portion of that country's imports are coming from the Middle East.

Officials in Washington have made no bones about the fact that a serious disruption of supplies from Arab countries could cause some painful economic dislocations this winter and that Americans could be facing fuel rationing and allocation not seen since the Second World War.

Cutbacks already evident

Already, the effects are being felt. There have been cutbacks of supplies from Arab lands and the curtailment of shipments from Mediterranean ports. According to some Washington sources, the output of Middle East producers has been reduced by more than a million barrels of oil per day.

At best, even if petroleum supplies from Arab lands picks up again after it is safe for tankers to enter eastern Mediterranean waters, Middle East members of the Organization of Petroleum Exporting Countries will likely use the war as an excuse to raise even higher the cost of oil from their massive reserves. Arab price increases will inevitably be followed with similar hikes from South American producers which also supply the American market.

Further complicating America's role in the Middle East conflict is the worrisome point raised by the flow of vast sums of U.S. currency to Arab nations in exchange for oil. Massive dollar reserves accumulated in the Middle East could be used to flood international markets in exchange for other currencies, weakening even further the shaky purchasing power of American money.

It will be interesting, of course, to observe how the sticky web of interrelationships between woldwide energy supplies and prices will affect the current Ottawa-Edmonton problem and U.S. reliance on Canada's petroleum exports.

The prospects of growing fuel demand in the U.S. and the certainty of higher international prices will likely increase the tension between the federal government and Alberta's government and oil producers. Industry representatives are arguing that if they are not allowed to take advantage of higher prices in the international markets, production incentives will diminish and the likelihood of long-term domestic fuel shortages will increase.

In any event, the Canadian government could make some notes for future reference on the rather inadequate steps Washington has taken so far to ensure adequate fuel supplies for the coming winter.

Mind you, President Nixon has asked home-owners to turn their thermostats four degrees lower to help conserve scarce fuel oil, and has ordered the pilot of the presidential jet to fly at slower speeds. At the same time, however, he still hasn't allowed fuel prices to rise to international market levels. The Washington administration's enforcement of low gasoline prices, too, has ensured high usage and substantial refinery capacity diversion from more important fuel oil production.

Mining activity increases north of 60

Base metal industry shows higher strength

By LES BUHASZ

Mining activity and hard rock prospects are on the rise north of the 60th parallel following the recent upturn in the economic strength of the base metals industry.

Government sources have estimated that initial exploratory expenditures in the Yukon will climb to about $15 million from $10 million spent in 1972, while preliminary commitments in the Northwest Territories indicate expenditures of approximately $10 million, almost twice the amount spent last year.

Some sources have speculated that development work to bring new properties into production or to further enhance existing reserves may climb to as much as $50 million in all regions north of the 60th parallel. This would be a doubling of the development budget for the area in 1972.

Both the Yukon and Northwest Territories chalked up substantial gains in mineral production during 1972 to set up a development momentum which should be sustained in 1973 and 1974.

In the Yukon last year the production of all minerals increased 10.3 per cent to $102.8 million for the fifth consecutive new high. The larger output, equal to 1.6 per cent of the nation's total and unchanged from the 1971 percentage, was due to increased treatment facilities at a large lead-zinc-silver mine and higher output at an asbestos mine. The Yukon again ranked tenth among Canada's producing regions.

Per capita value of mineral production, at $5,400, was the highest in Canada.

Zinc continued to be the leading mineral produced in the Yukon in 1972, up 12.5 per cent to $43.9 million and accounting for 42.8 per cent of the total.

The Yukon also became the leading Canadian producer of lead last year, and its value of $34.8 million, up 18.7 per cent from 1971, was 34 per cent of the total mines production of the region. Asbestos was again ranked in third spot with value up 14.8 per cent to $14.2 million. Silver production was in fourth place last year with a total value of $9.3 million for 9.1 per cent of the total mineral production.

Natural gas, valued at $338,000, was produced for the first time in 1972. Other minerals produced were gold, $146,000, and cadmium, $33,000.

Further growth was also experienced in the Northwest Territories' mineral industry last year for a total value of $126.6 million, up 9.6 per cent over 1971. Equal to 2 per cent of Canada's total mineral production value, this was up slightly from 1.9 per cent in 1971 and kept the territories in ninth place in Canada.

Per capita value of mineral production was $3,515.

Metals accounted for slightly more than 98 per cent of N.W.T. mineral production, the remainder being natural gas and crude oil. Zinc and lead accounted for 83.5 per cent of total mineral production, with zinc responsible for 63 per cent and lead the remaining 20.3 per cent.

Zinc was up 6.7 per cent in value to $80 million, but down 6.4 per cent in volume to 210,000 tons. Lead was 13.1 per cent higher in value to $25.6 million and up 1 per cent in volume to 83,000 tons. Accounting for 8.4 per cent of total mineral production, gold remained steady at $10.5 million. Silver dropped 35 per cent to $3 million, due primarily to the closure of a high-grade silver-gold mine.

Crude petroleum production in the N.W.T. remained about the same in 1972 as it was in 1971 at $1.2 million. Natural gas production, however, increased from $117,000 to $1.3 million. Copper with a value of $609,000, was the only other mineral produced in the territories.

According to most industry executives, 1973 should be regarded as the first year for economic recovery in the mining industry north of the 60th parallel.

While new mines may not spring into existence overnight, optimism is nonetheless in the air. Considerable lead time will be required to assess and develop new properties in the North and overall the industry will need some time to adapt to a return of favorable investment conditions and booming metal prices.

No new mines have gone into production in the N.W.T. for several years and in the Yukon only one short-lived operation was started in 1972.

There are six working mines in the N.W.T. and current exploration activity is concentrated in the Keewatin region, west of Hudson Bay, west of the Boothia Peninsula of the extreme mainland, Devon, Cornwallis and Baffin Islands in the far North to the MacKenzie Mountains, west of Wrigley and extending along the Nahanni Valley toward the converging boundary region of the Yukon, Alberta and B.C.

In the first six months of 1973, some 4,500 claims were registered in the Nahanni-Wrigley region, mostly in search of lead and zinc deposits.

Also during the first half of the year, the Keewatin region saw some 1,500 claims registered in hopes of gold, silver, zinc, copper and iron prospects of commercial size.

Some industry spokesmen have speculated that the N.W.T. mineral production value could rise to $150 million during 1973 as a result of increased output and higher metal prices.

In the Yukon, last winter and spring saw feverish exploration activities in five large areas in the eastern section of the territory. The Yukon now has six producing mines and there are predictions that this could rise to nine or 10 during the next two years.

Amax Exploration has outlined a huge tungsten deposit on the Yukon-N.W.T. border near Mount Allan. The company has estimated there are more than 30 million tons of tungsten-bearing rock, graded at 0.9 per cent.

Hudson Bay had a major exploration program under way at MacMillan Pass on an estimated five-million-ton lead-zinc-silver deposit. And Placer Development staked more than 5,000 claims in another lead-zinc area near the Yukon-N.W.T. border last winter.

Atlas-Dynasty had a massive exploration program under way on silver and lead deposits in the Bestock Range of the Hess Mountains, about 100 miles north of Ross River. The potential mining area is 12 square miles.

And several companies are active in the Anvil Range, a 600-mile region about 35 miles north of Ross River. Mining engineers claim the Anvil Range contains the most valuable mineral deposits yet discovered in the Yukon. Industry experts have also predicted an invasion of the Richardson Mountains region of the territory along the almost finished Dempster Highway, which continues into the MacKenzie River delta to the northeast.

According to recent reports, production has increased at several of the six major mining operations in the Yukon in recent months. The Anvil Mines Ltd. silver-lead-zinc operation northeast of Whitehorse, for example, has gained about 700 tons per day to a total of 7,935 tons a day from its open-pit workings. United Keno Hill Mines Ltd. is also engaged in an exploratory program to enlarge its lead, zinc, silver and bismuth reserves which are now yielding some 200 tons per day.

The casualty of recent months was the copper and nickel property of Hudson Bay and Yukon Minerals Ltd. which started production in May, 1972 at 600 tons a day. According to some reports it ceased operations because of insufficient reserves and economics in general last summer.

In the N.W.T., Cominco Ltd. will make a significant investment of approximately $12 million over the next two and one-half years to sink a new mile-deep shaft at its Con mine. The new shaft is expected to make the recovery of additional ore economic at currently high prices.

Transportation remains the single most important factor in the consideration of mineral prospects north of the 60th parallel.

The Dempster Highway from the Yukon and the Mackenzie Highway from Alberta, both converging on the Mackenzie River delta, promise to open up vast tracts of mineral-rich lands. And, reliable sea transportation could mean tremendous growth in the development of the territorial coastlines and the Arctic Islands.

In the Yukon, one of the major problems has been a lack of adequate rail transportation to the Pacific Coast. Currently, there is only one railway in the Yukon, the White Pass and Yukon Route's narrow-gauge line from Whitehorse southwest to tidewater at Skagway, Alaska.

This means that virtually all the territory's mineral production has to be trucked to the railhead in Whitehorse or down the Alaska Highway into B.C.

Commissioner James Smith, Ottawa's top man in the Yukon, has said that the immediate priority for the expansion of the mineral industry in the territory is the extension of the present White Pass system into the Ross River area from Whitehorse. The next stop would be a link south to the trans-continental system, and eventually a connection with the Alaska railway system.

Most Yukoners see Prince Rupert, B.C., as the territory's eventual major outlet for mineral exports.

The Yukon also faces a power generation problem. Its electrical generating capacity is being strained to the limit. In 1972, the Yukon generated 244 kilowatt hours. The rated capacity of all existing generating facilities in the territory has been placed at 250 million kilowatt hours. The federal government is in the process of studying proposed construction of a hydroelectric development on the Aishihik River, a project opposed by environmentalists.

The mining industry in the Yukon has also found itself caught in the middle of a growing jurisdictional battle between the Yukoners and Ottawa over the ownership of the territory's mineral resources.

A burgeoning political autonomy movement among the 20,000 territorial population claims the benefits of resouce development should accrue to northerners, while the federal government has insisted that in order to achieve provincial status, the Yukon must first prove itself economically and socially stable.

One of the major problems facing the mining sector in both the Yukon and the N.W.T. has been the industry's inability to recruit large, stable working forces at northern operations. Further, the size of the labor force has not kept pace with the recent increase in mining activity. Poor employment prospects until the past year has seen the number of workers dwindle and their average age climb sharply.

"We must recruit new miners, and above all should induce some of the experienced men who have left to return," one company president was quoted as saying recently.

Part of the problem is the inhospitable climate in northern areas and the competition from construction work in the southern regions.

A new force in the hard rock sector of the industry in recent years has been the petroleum companies which have embarked on a "total energy" concept of corporate diversification. The major mining companies have, for the most part, tended to stick to their existing production sites in the North, while proving up new reserves in adjacent areas.

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. . . gold producing operation four miles north of Yellowknife, N.W.T.

NORTHERN MINERAL PRODUCTION

YUKON TERRITORY

	*1972 Quantity	1971 Quantity	*1972 $ Value	1971 $ Value
Gold (ozs.)	4,000	14,473	146,000	511,534
Silver (ozs.)	5,620,000	5,747,703	9,330,000	8,966,417
Lead (lbs.)	225,921,000	217,336,142	34,848,000	29,340,379
Copper (lbs.)	—	5,152,000	—	2,709,696
Zinc (lbs.)	230,000,000	233,134,144	43,861,000	39,002,342
Cadmium (lbs.)	13,000	59,100	33,000	114,654
Asbestos (tons)	104,000	91,969	14,200,000	12,374,360

*1972 figures estimated.

NORTHWEST TERRITORIES

	*1972 Quantity	1971 Quantity	*1972 $ Value	1971 $ Value
Gold (ozs)	268,000	308,339	10,537,000	10,897,934
Silver (ozs.)	4,599,000	2,932,446	7,303,000	4,574,616
Copper (lbs.)	1,204,000	1,378,021	609,000	727,595
Zinc (lbs.)	420,000,000	448,633,500	80,094,000	75,056,384
Lead (lbs.)	166,000,000	167,628,110	25,606,000	22,629,795
Cadmium (lbs.)	—	155,400	—	301,476

*1972 figures estimated.

Dogs find minerals by sniff

Man's best friend may soon be man's best mining prospector, according to an article in a recent issue of Canadian Mining Journal.

A Vancouver syndicate, appropriately named Syndicate K-9 is out to prove that dogs can be trained to smell out sulphide-bearing rocks not easily detected by conventional prospecting methods.

Prospector dogs have been used in Finland for 10 years, but the west coast study is the first in North America. Two German Shepherd dogs have been tested and training will begin in earnest in the spring.

The canine prospectors can already detect sulphide-bearing boulders and uncover five times as many boulders, either on or below the surface, than a human prospector using conventional methods. The Finns claim some dogs detect rocks more than seven feet below the surface.

Canada's snow doesn't bother the dogs, it seems to trap the gases they smell. The real problem lies in maintaining the dog's interest. When natural finds are slow the dogs lose the excitement of prospecting.

Northern conference

Continued from Page 1

chard Rohmer, barrister and solicitor in the firm of Lang, Michener, Cranston Farquharson and Wright, and deputy chairman of the Great Plains Project, Toronto.

Panel 5, meeting Friday, will deal with The Future Requirements of Northern Mining, and will be chaired by D. E. Mitchell, president of Great Plains Development Co. of Canada Ltd., Calgary. Serving on the panel will be Dr. D. A. Chant, chairman, department of zoology, University of Toronto; E. C. Manning, president of M and M Systems Research Ltd., Edmonton; and Pat Carney, president, Gemini North Ltd. Yellowknife.

In addition to the panel discussions, the conference will hear several feature speakers.

The conference will be officially opened by Alberta Lieutenant - Governor J. W. Grant MacEwan.

Alfred Powis, president Noranda Mines Ltd., will address the Wednesday luncheon, having as his subject Canada — As a Global Supplier of Minerals.

The Wednesday dinner will be highlighted by an address by federal energy minister Donald MacDonald on Canada's Northern Development.

Northwest Territories Commissioner Stuart Hodgson will address himself to Government Problems of Our North at the Thursday luncheon.

Thursday evening the dinner address will be Mining and Canada's North, given by Dr. O. M. Solandt, a director of the Huyck Corp. and the Riverside Research Institute.

The Friday luncheon address will be a summation by Arthur Smith, president of the Conference Board in Canada.

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Chamber fights manpower squeeze

Northern mining firms face high labor turnover

By DEAN WRIGHT

EDMONTON — One of the most essential forces in the northern mining industry is the Alberta-Northwest Chamber of Mines, Oils and Resources.

Formed in 1936, the chamber promotes and encourages northern development, and acts as a communication vehicle for discussion aimed at solving northern mineral industry problems.

Headquarted in Edmonton, the chamber acts as a liaison between mining companies and the public; as an employment agency for the mines; and each year publishes an annual report summarizing thoroughly the metal and mineral picture and covering northern developments affecting the resource industries.

Chamber manager J. H. (Bud) Chesney says the body is designed to aid "both the vendors to the mining industry and the industry itself."

In this capacity the chamber aids firms that wish to sell to mining companies by acting as a "clearing house," matching the services or goods offered by such firms to the expressed requirements of the mines.

The chamber's membership numbers several hundred firms, whose membership fees comprise the sole source of financing for the chamber.

As part of its efforts to publicize the mining industry, the chamber co-ordinates each year a summer air tour of various mineral installations in Western Canada for interested businessmen.

Probably, however, the most important function of the chamber is its function as an employment agency for the mines.

Mr. Chesney explains that individual mines often do not have access to the large pool of potential labor -the chamber does. The logistics of hiring do not make it practical for mines to interview candidates individually.

Approximately 2,000 people find mine jobs each year through the hiring facilities of the chamber.

The chamber, however, noted in its annual report for 1972 that approximately 1,400 persons were recruited, processed and placed in jobs in the Territories, B.C. and Alberta. This, the report continues, is a slight decrease from 1971. The decline is attributed to the fact that no start-up crews were required on mining operations.

In fact, says the chamber,

NORTHERN MINING

there were several shutdowns, some of which were temporary, others permanent.

In dealing with employment procurement, the chamber must deal with some of the manpower problems facing the mines.

The manpower problems are not wage-oriented, but are—especially in the case of northern operations — environment-oriented.

The chamber states in its annual report: "Turnover figures are causing concern throughout the North, despite the best efforts of the operators and the chamber to reduce this through careful screening of applicants. High percentages of single men living bunkhouse style is undoubtedly a major factor."

The report continues, noting the most serious shortages in mine work forces were in the skilled tradesmen categories.

"At the year end, shortages of heavy-duty mechanics, maintenance mechanics and electricians were affecting most northern operations."

The chamber attributed this to city construction jobs offering high wages and overtime which attracted the bulk of available tradesmen.

As well, high rates of unemployment insurance payments enable the tradesmen to live comfortably between construction projects.

Mr. Chesney adds that one unavoidable problem, the inhospitable northern climate, contributes to the manpower squeeze.

"Persons from the south," he says, "are somewhat hesitant to live in the cold climate in spite of the high pay."

To remedy this, he recommends that living conditions be made more attractive, possibly drawing a higher percentage of families to the north.

Although more are needed, some very attractive resource towns have been created in the north. Faro, Y.T. and Lynn Lake, Man. are only two examples.

Faro, developed by Anvil Mining Corporation and the Yukon territorial government, is 13 miles from Anvil's lead-zinc-silver mine, and offers attractive townhouse accommodation. Since the town was formed, it has grown to become the second largest in the Yukon.

Lynn Lake, near a Sherritt-Gordon operation in northern Manitoba, is being supplied with new homes by Nelson Homes of Lloydminster, Alta. The homes, purchased by Sherritt-Gordon, are then resold to employees under an arrangement by which Sherritt-Gordon lends the employee the money to purchase the house over an exceptionally long period at a very low interest rate.

Towns such as this, says Mr. Chesney, are more amenable to the average individual, and have the capacity to attract more people North. Another promising aspect of northern development, he notes, is that more young people are taking an interest in developing and living in the North.

But attracting people to the northern mines will not automatically solve the problems faced by the mineral industry in its operations north of 60.

Mr. Chesney says another great problem of northern mining is difficulty in marketing.

"A mine isn't a mine unless minerals can be marketed."

He explains that if a mineral deposit is far from shipping or transportation routes, it may be impractical if not impossible to move the product to a market. In such a situation, no matter how great the wealth of ore, it will remain in the ground.

The chamber, by fostering communication between persons involved in resource industries in the North, helps to provide a forum in which some of these problems can be discussed and attacked.

The chamber's relationship to the mining industry can perhaps best be expressed in the words of outgoing president H. J. S. Pearson's statement in the 1972 annual report:

"These industries, many of which are represented by this chamber, are faced with highly competitive international markets. They take large risks, often involving huge amounts of money for exploration of Canada's resources. We believe it is a simple fact that if Canada does not provide proper tax incentives for this type of entrepreneurship, these corporations will invest elsewhere."

"It is my hope that in future years this chamber can play a larger role as a spokesman for the industries we represent. Too often in the past the dialogue has been one-sided."

Canadian lead is found dumped in United States

WASHINGTON (CP) — Imports of primary lead from Canada, valued about $18 million a year, are being sold at less than fair value in the United States, the U.S. treasury department ruled last week.

It sent the case to the U.S. tariff commission to determine whether American industry is being injured. If the commission finds injury, special anti - dumping duties may be imposed on the Canadian lead.

A tariff commission decision is expected by mid-January.

An informed source said the Canadian exports came from Cominco Ltd. of Vancouver and Noranda Mines Ltd. of Toronto.

A similar treasury finding was made against Australian lead, whose shipments are valued at about half the Canadian sales.

The treasury department, acting on a complaint from the Bunker Hill Co. of Kellogg, Idaho, started an investigation of lead imports from the two countries last spring.

It announced July 27 that it was withholding appraisal on the imports because of "reasonable cause" to believe that dumping was taking place, and it confirmed the finding Thursday.

The U.S. lead and zinc industry, troubled by environmental standards and other problems, pressed Congress this summer for quotas on imports, but Congress took no action.

Since then, market conditions are reported to have improved and the U.S. industry now may have difficulty proving injury as a result of imports.

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Arctic ore shipment may signal year-round Cominco operation

By HAROLD FINKLEMAN

This week, an historic shipment of lead - zinc ore is being unloaded in Ogdensburg, New York, as the first ever large - scale production from Canada's high Arctic.

It is not pegged for export, nor is the venture commercial. Rather, it will go to St. Joe Minerals Limited for metallurgical testing—ail 3,600 tons of it.

And Cominco Limited, of Vancouver, is watching the shipment very closely.

If the tests on the ore which landed in port Saturday go well, it may not be long before Cominco's Arvik Mines Limited operation on Little Cornwallis Island becomes productive year - round.

It would represent a new era for the frozen wasteland opening the doors for broader development of other natural resources. In the meantime, it stands as the first shipment of its kind since Martin Frobisher's expedition to Baffin Island in 1577.

Whether or not the mine is to become commercial, according to Cominco sources, is not only dependent upon the outcome of the metallurgy tests. The problem of transportation, which plagues most northerly operations, also haunts the mine.

In fact transportation has been cited by the companies involved with the Little Cornwallis operation as the most significant and immediate problem.

Having already spent $5 million on development of the mine, Cominco and its 25 per cent partner in Arvik, Bankeno Mines Limited, of Toronto, are still unsure as to whether it will be economically feasible to move the ore to southern markets. Feasibility studies are not expected to be completed until next year.

Even executives from Narwhal Arctic Services and Narwhal - Lauritzen Shipping Limited, of Calgary, who are handling the current shipment are unsure of the economics.

Narwhal president Dave T. Jumpsen says the ore handling can be managed, even on a scale 40 times the size of the shipment moving now. Still, the cost could be greater than short - range land movement and he looks to the international market price of lead and zinc as possibly being the deciding factors.

NORTHERN MINING

If so, news of a "spectacular" market for zinc on the London Metal Exchange could mean good news for the firms, and though there is no great rise in demand for lead, it has been reported by the Financial Times of London as being in "tight supply."

The eventual producability of any ores found on other Islands is also at stake in this project.

Cominco's partnership also covers exploration land on adjacent Cornwallis Island, just east of the tiny island on which Arvik's 'Polaris' mine is being developed. To the southeast, Baffinland Iron Mines Limited continues studies on mining its ore deposits near Arctic Bay on Baffin Island while further mineral studies are being carried out on Devon Island and prospectors are eyeing Somerset and Ellesmere Islands.

LOADING ORE AT LITTLE CORNWALLIS ISLAND
. . . a first for Cominco and Canada's Arctic Islands

The presence of these efforts amid the progressive endeavors of petroleum companies, presents a potentialiy attractive situation for shipping companies. Needless to say, Narwhal is crossing its fingers over the outcome of Cominco's testing.

Mr. Jumpsen said Narwhal is in the discussion stages with mining concerns "one to two years behind" the Arvik operation. His company handles extensive shipping to oil and gas exploration efforts among the islands.

Before making the lead-zinc pickup, the J. Lauritzen ship "Helga Dan" carried about 4,400 tons of oil equipment, including drilling muds and chemicals, which was let off at Resolute Bay on Cornwallis Island, and 300 tons of mining equipment and supplies including a tractor which were discharged at the mine.

Since loading and unloading is handled by barges moving between ship and shore, ice conditions held up the procedure "this time around," according to Mr. Jumpsen.

It took 27 days even with close support by the Canadian Coast Guard ice breakers "Labrador" and "St. Laurent," and Mr. Jumpsen expects that future attempts could make use of long gravel piers or similar types of docks which would allow even the ships to move in without fear of congestion by ice flows in the shallow bays.

Narwhal uses four ice - strengthened ships. Narwhal Arctic Services is a partnership of Bow Valley Industries Limited of Calgary and California - based Santa Fe-Pomeroy Inc., while Narwhal - Lauritzen Shipping is a partnership of Narwhal Arctic Services and J. Lauritzen of Copenhagen.

J. Lauritzen Lines is noted for its work in ice - bearing seas.

While Cominco has had some experience in mining in the far north — almost exclusively at the lead and zinc producing Black Angel Mine in Greenland which it works through major ownership in another company—the problem of transport is still new.

So are problems such as housing and environment. Cominco has established studies in those areas demanding that they bring environmental consultants onto their staff.

The conditions are as harsh and rugged as those faced by oil companies on the islands, but so far it appears as though the mine should be capable of operating year - round in spite of a short six - week shipping season.

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Stronger growth strains economy

TORONTO (CP) — Strong growth is straining the economy at the seams and the country will pay for it with increased inflation unless it reduces over-all spending to a more moderate level, Gerald K. Bouey, governor of the Bank of Canada, said last week.

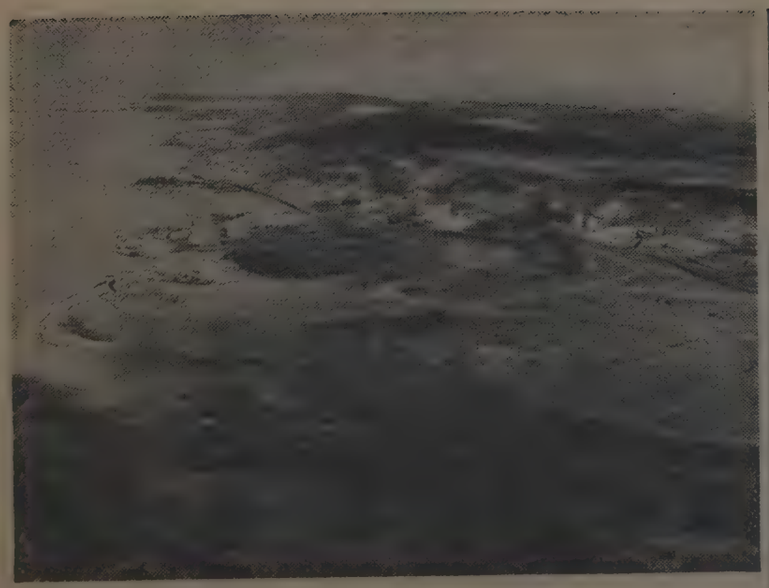
"For several months now the Canadian economy has been showing many clear signs of strain on productive capacity — very high levels of activity, growing backlogs of unfilled orders in many industries, and lengthening delivery dates for many commodities," he told a business outlook conference.

"There are also signs of strain in the labor market, with widespread evidence of scarcity of available workers to fill particular categories of jobs, unskilled as well as skilled," Mr. Bouey added.

He said the action of the government's central bank in raising its prime interest rate to chartered banks five times in the past six months — to 7¼ per cent from 4¼ — was an attempt to curb inflationary borrowing and spending.

It is too early to tell, he said, how well it is working.

"Since the Canadian economy is now operating once again close to the effective limits of its existing productive capacity, it follows that its growth in real terms over the period ahead will have to be slower than the pace of the last 12 months, because this pace has been well in excess of the economy's long-term growth rate of five to 5½ per cent a year," Mr. Bouey told the Conference Board in Canada.



NORTHERN SASKATCHEWAN URANIUM MINE
. . . an illustration of industry's development potential

Canadian firms will drill in Washington

SPOKANE, Wash. (AP)—Eight Canadian mining and oil companies reportedly will drill for oil and gas in Stevens County about 50 miles north of Spokane.

The announcement, made in Spokane last week, said Kallio Iron Mines Ltd., of Toronto, would head the venture. The Canadian group initially will earn a 75 per cent working interest in the wells and acreage with Giant Minerals Corp. of Spokane, present holder of the leases, retaining a 25 per cent carried interest.

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Mining industry benefits spread through economy

There is nothing centralized about the mining industry.

This important sector of the Canadian economy does not merely confer benefits upon one or two areas — its spending on supplies, creation of jobs, its support of transportation and other services, and its earnings of dollars are spread widely.

In the private enterprise sector, undoubtedly it provides the greatest thrust of any industry toward regional development.

Uninhabited areas have been penetrated through successful mineral exploration and development, the opening of new mines, and the building of new mills and smelters. In a great many areas, mining provided the first opportunity for economic growth, settlement and prosperity. In many cases, mining activity remains the primary support.

Even if one measured the narrower economic impact of a mine in a remote area, the result would be impressive enough — considering that local and regional benefits flew from such ventures when none previously existed.

But to merely tabulate the number of mining and milling jobs, or to measure commercial activity in a mining town, would provide only a partial view. Development of a mine makes for a "multiplier effect."

For example, a recent study concluded that each worker directly employed in the mining industry in B.C. supports seven other workers in all parts of Canada.

As yet, no comprehensive studies have been made of mining's multiplier effect on a national scale, although estimates by the mineral resources branch of the federal department of energy, mines and resources indicate that Canada's total mineral-dependent labor force is about 1.5 million. Similar calculations also suggest that the full direct and indirect impact of the industry currently amounts to approximately 20 per cent of the gross national product.

Thus, a mining project generates additional income as a result both of the capital investment that must be made in a mine, mill or smelter as well as the ongoing purchases of supplies and services that are part of mining operations.

Canadian mining companies spend well over $2 billion each year for their purchases of equipment and a wide range of operating supplies, materials and services. For new equipment alone, more than $300 million annually has been expended in recent years, and while some very specialized equipment must be imported, about 80 per cent of all the industry's total capital spending for machinery as well as almost all of its purchases for operating supplies and services are made in Canada.

Railway and airport construction and new hydro facilities are often among the side benefits of the mining industry. Since these involve major construction work, the production of heavy equipment and various technological devices, it is clear that the industry's "ripples" are significant and that they occur far from the mine site.

Some of Canada's newest and fastest growing manufacturing and service industries trace their origin to the mineral industry. Canada has won world regard, for example, for its development of mobile camp sites, first conceived for remote projects. Canadian-designed and manufactured exploration equipment is sold around the world.

Many of these companies are using their mineral base to diversify into other manufacturing areas. And of course, taxes generated by the mining income — corporate, personal as well as sales taxes and customs duties — benefit all regions of Canada.

But probably the most dramatic connection between the mining and multiplied economic activity can be seen in transportation and communications.

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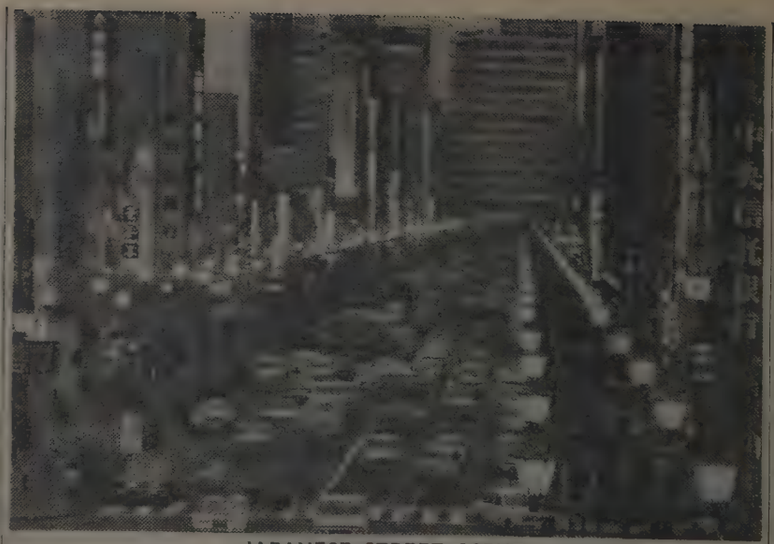

JAPANESE STREET SCENE
. . . giant market for energy resources

Japan dependent on energy imports

By THE CANADIAN PRESS

TOKYO — "Japan has the most dynamic and the most fragile economy in the world."

This observation by Ross Campbell, Canadian ambassador to Japan, is a commentary on the precariousness of an island economy geared to an international trading system.

The country would come to a stop in about a month if its supply of oil were cut off, because virtually all of this basic energy source is imported and storage facilities are limited.

The current drift of world politics opens the possibility that Japan may become increasingly tied to North America for its fuel supplies.

Kazuo Nukazawa put the Japanese situation on resource supplies in perspective as he breezily pulled up a chair in the Keidanren dining room and talked over a lunch made up mainly of imported foods.

"What are you doing here?" he said, referring to Canada. "You don't need GATT."

The formal opening in Tokyo of a new round of trade negotiations under the General Agreement on Tariffs and Trade had just been completed and the Canadian delegation had been promoting upgrading of resources. Most countries import raw materials duty-free but have tariffs on more processed materials. Canada wants penalties to domestic processing removed.

"Canada doesn't need GATT; you can just say what you want and other countries will have to provide that," said Nukazawa, a staff economist with Keidanren.

Keidanren — Federation of Economic Organizations — is a powerful organization representing Japanese business and it does much of the research work on business policy matters.

"God didn't give us minerals as in Canada," Nukazawa said. "God didn't give us oil as in Arabia, so we have to work hard."

More than four-fifths of Japan's oil supplies come from the Middle East and oil has become a political commodity. It appears that Japan and other countries will be under increasing pressure from Arab suppliers. The Arabs will provide oil to their friends and their friends are likely to be countries that do not support the United States position of giving military aid to Israel.

Nukazawa said Japan had no choice but to do what the Arab states want unless the U.S. can assure an alternative source of supply.

The U.S. position likely will become clearer as Secretary of State Henry Kissinger gives more details on his proposal for a new North Atlantic Charter.

TRADE SCENE

The interpretation in Japan is that the key issue will be defence arrangements. A possible U.S. proposal, Nukazawa said, would be for Japan to aid other Southeast Asia nations and this aid would take the form of defence installations.

Such a program might be a political liability to Japan, where the constitution written by U.S. authorities after the Second World War prohibits any offensive military weapons. The legality of Japan's Self-Defence Force is being tested in court.

Japanese participation in a new alliance with the U.S. and Europe likely would involve guaranteeing energy supplies.

"We are not in love with Arab oil, we are just in love with oil," Nukazawa said.

U.S. authorities have so far discounted suggestions that oil from the North Slope of Alaska would go to Japan but if a pipeline is built to the Alaskan south coast it is only a short tanker trip from there to Japan.

When Kissinger first talked about his ideas for a new alliance in a speech earlier this year, he included both Japan and Canada.

If the Japanese business interpretation is correct, an energy-sharing agreement would be part of the alliance and this might involve any oil found in the Arctic or the Atlantic.

Oil is the major fuel for the relative short-term picture. The atomic energy commission of Japan is confident that nuclear fuels will eventually replace it.

"Nuclear fusion is the possible answer to the world energy supply difficulties, providing clean power on a semi-permanent basis," the commission says in its general review of the country's long-term program for development of atomic energy.

The review says it is expected that nuclear fusion technology will be successfully created somewhere in the world during the latter half of this decade.

Japan appears to favor the U.S. program for development of conventional nuclear reactors. The two countries signed a long-term supply agreement last year for 26 nuclear generators to be built in Japan beginning this year.

The U.S. nuclear program uses reactors fuelled with enriched uranium while in Canada the reactors being built use natural uranium and heavy water.

The Power Reactor and Nuclear Fuel Development Corp. of Japan and the Canadian Atomic Energy Corp. have signed an agreement for technological exchanges in development of a heavy hydrogen reactor.

Nagatoshi Isshiki, research director for the Atomic Energy Bureau of the ministry of science and technology, said there is interest in Japan in reactors being developed in Canada.

Isshiki said atomic energy becomes a more attractive fuel, at current prices, when the cost of crude oil goes beyoud $5 a barrel. Current prices of crude oil delivered to Japan range between $4 and $5 a barrel, depending on shipping costs, which are at an all-time high.

Isshiki said geothermal energy—using heat from the earth's core to run steam turbines—is not at present considered a potential major energy source.

Japanese, Denison look for B.C. coal

TORONTO (CP) — Denison Mines Ltd. of Toronto and Alco Standard Corp., announced recently a joint agreement with two Japanese companies to carry out exploration and feasibility studies on about 47,000 acres of coal land in northeastern British Columbia.

Mitsui Mining Co. Ltd., Japan's largest coal mining company, and Tokyo Boeki Ltd., one of Japan's most substantial trading firms, will participate in the program costing an estimated $1.25 million.

The project will be under the direction and control of Denison and will be paid by the Japanese firms in exchange for a 10-per cent interest in the licences. The land under exploration represents 80 of 253 licences of the Denison-Alco Standard Quintette coal property.

The Japanese group also has an option to acquire an additional 15 per cent interest in the licences upon payment by Sept. 30, 1975, of $2 million.

The program is to begin immediately with the second stage to be completed in 1974.

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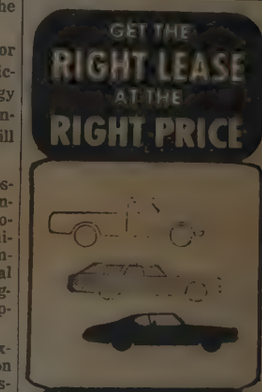

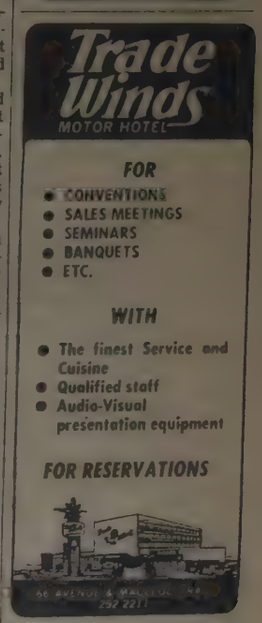

Scotland divided now over oil boom

INVERGORDON, Scotland (Reuter) — Through the office window dusk is falling on the Highlands but the clock on the wall says it's lunchtime in Houston and the room is full of Texans talking about oil.

Outside on the shores of Cromarty Firth columns of steel thrust skyward, soon to take shape as one of the world's largest maritime drilling rigs.

Toiling around it are men who used to be shepherds, plowmen or road workers until the lure of oil money brought them from the hills and glens in the last 18 months.

The scene is part of a process currently transforming northern Scotland into one of Europe's richest boom territories.

While the rest of the world agonizes about an energy crisis, the seabed around Scotland is rich in unsuspected oil deposits.

In global terms the supply is small—perhaps four per cent of world production. But if government estimates are correct this might be enough to furnish the best part of Britain's oil needs and radically improve the country's chronic balance of payments problem.

So far, 13 of the 20 prospecting companies have struck oil. At least six of these wells are regarded as commercially viable.

The first saleable oil should start flowing next year. This will come from the Forties field, a site operated by British Petroleum at a spot 100 miles off the Scottish east coast.

A pipeline is being built to carry the oil ashore to a point south of the town of Peterhead. From there another pipe will take it to Grangemouth refinery in central Scotland.

Other wells should start up soon after. By 1980 government experts believe the Scottish wells will be delivering more than 100 million tons a year—equal to present British consumption and two-thirds of the country's calculated needs in 10 years.

In Peterhead and the large neighboring port of Aberdeen freshly recruited workers are setting up plant, offices, warehouses and hotels to serve the new industry. Fishing boats have to squeeze into harbor past oil company fleets plying to and from the well sites.

Unemployment in the region, once heavy, has all but vanished. Wages are soaring and a new gloss is displacing the greyness of Aberdeen.

Scotland's conservation society fears the country may be throwing away its heritage in exchange for what may be short-lived prosperity.

"The community is being distorted," said Peterhead schoolteacher Toby Hodd.

"Some villages have lost their key craftsmen. One place now has no baker because he went off to work on an oil boat."

Conservationists fear that much of the new employment may not last. Some of the construction projects should be completed in two or three years, releasing men back into a community that may no longer have a place for them.

Even in the longer term, conservationists say, the oil might last no more than 20 or

OIL WORLD

30 years. After that Scotland would be left with a derelict industry and none of the traditional occupations like farming or fishing to fall back on.

The oil industry takes great pains to soothe local fears. It stresses the effort companies are making to keep visible despoilation to a minimum—as in the case of underground pipes which they say will leave the Highlands unscarred.

But the oilmen say world need is too great to neglect a rich source just because it may eventually run dry.

Another local complaint is the great jump in house prices and rents. Some four-bedroom houses suitable for oil executives are now fetching as much as $625 a month.

The rig being built on Cromarty Firth is a product of Highland Fabricators, a company one-third owned by the British construction company George Wimpey and two-thirds by Broom and Root of Houston. This is where the office clock tells Houston time, to guard against putting through phone calls to headquarters at inconvenient hours.

The company employs 1,300 men and would take 1,000 more if it could get them. But all spare labor has been mopped up and even if other workers came to the district there would be nowhere to house them.

Municipal authorities would like to build more houses but most of the men who used to build houses are in the oil business.

Civic leaders worry about providing schools, health services and housing to cope with a population that may eventually expand fourfold in the Cromarty Firth area to around 120,000.

A few diehard conservationists think the oil industry is even worse than the artillery range which the British army wants to set up at Dornoch, on the east coast.

"If you shell a lonely place the wildlife comes back as soon as the shooting stops," one conservationist said. "But put up a refinery and they leave forever."

Sales higher

REGINA (CP) — Saskatchewan retail sales last month totalled $129.3 million, up 9.4 per cent from the $118.2 million for September, 1972, the Retail Merchants Association of Saskatchewan says.

The statistics are from a monthly survey distributed to retail stores throughout the province.

Association manager R. E. Walker said inflation is responsible for part of the increase but most of the gain reflects an increase in farm income.

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Alberta on top in mineral production

By DEAN WRIGHT

Alberta continued to lead all Canadian provinces in mineral production during 1972.

Value of production increased over the 1971 figure, and accounted for 30.2 per cent of the total Canadian mineral production.

Fossil fuels continued to be the dominant contributor to the mineral picture, capturing 96.7 per cent of total value. Crude petroleum provided 64.8 per cent of the total provincial mineral value of production.

Elemental sulphur and structural materials accounted for the balance of mineral production.

Conventional crude oil production rose 19 per cent to average 1,158,000 barrels per day, and the addition of synthetic crude and natural gas liquids raised total liquids production by almost 21 per cent to 1.5 million barrels per day.

Exploration activity increased during 1972 with a record 2,500 well completions.

Sources indicate that 525 oil wells and 925 gas wells were completed, raising the total number of wells at the end of 1972 to about 10,000 operating oil wells and 4,300 operating gas wells. As well, another 1,950 gas wells are capped.

In dollar volume, Alberta increased production of natural gas and its byproducts and crude petroleum by $275.3 million over 1971, accounting for 74 per cent of the increase in total value of minerals produced in Canada in 1972.

Crude petroleum value was up to $1.25 billion.

Natural gas production rose 10.8 per cent to $322.2 million, while natural gas byproduct production was up 28.1 per cent to $238.8 million.

Sulphur value reversed this trend somewhat. Although the quantity of elemental sulphur sold was up 4.2 per cent over 1971, its value was down 12.8 per cent to $17.1 million.

Although crude oil production rose to a record level of 422.7 million barrels, proven conventional crude reserves declined an estimated 285 million barrels to 7.1 billion barrels.

Marketable natural gas reserves declined by 700 billion cubic feet to a level of 44.6 trillion cubic feet. Production of marketable gas amounted to 1.757 trillion cubic feet.

Natural gas liquid reserves rose by 678 million barrels to 2.12 billion barrels while sulphur reserves rose by approximately 10 million long tons to 190 million long tons.

The United States remained the predominant export market for Alberta's liquids production. Of 547 million barrels, approximately 327 million barrels, or 60 per cent, were exported to the United States.

In the more recent past, exports of Alberta liquids to the United States have accounted for about 55 per cent of the output. The increase to 60 per cent is attributed by industry sources to a relaxation of import quotas brought on by the continued sharp increases in energy requirements in the United States. With the imposition of export controls on propane the outlook for the remainder of 1973 is somewhat uncertain.

Capturing the most recent headlines on the oil and gas front — and directly related to mining — is the proposed Syncrude plant to be located in the Athabasca tar sands near Fort McMurray.

The plant, expected to cost approximately $1 billion, will use a dragline process, scraping the sands with giant shovels before putting it through a refining process to extract the oil.

Syncrude expects the plant to be producing 4.5 billion barrels per year or 125,000 barrels per day by the time of completion in 1978.

At the time of the announcement, Alberta Premier Peter Lougheed announced the formation of the Alberta Energy Corporation through which Albertans will be able to purchase a 20-per-cent ownership in the Syncrude plant.

Syncrude is a consortium of four international petroleum companies: Imperial Oil, Atlantic Richfield, Cities Service, and Gulf.

Shell has also proposed a 100,000 barrel-per-day plant to be located approximately 20 miles north of the Syncrude site and the existing 50,000 barrel-per-day Great Canadian Oil Sands operation.

If the Shell application is granted, construction would begin in 1976, with completion slated for 1982.

Alberta coal production experienced increases in both tonnage and value during 1972.

Alberta's 30 coal mines produced approximately 8.6 million short tons of marketable coal in 1972, an increase of 14.2 per cent over the 1971 figure. In fact, the 1972 coal performance exceeded the peak production of approximately 8.1 million tons established in 1946.

Dollar value of coal produced climbed 24.4 per cent to $52.8 million. Sales of sub-bituminous coal were 4.9 million tons, with 4.5 million tons finding its way to electric power plants.

About 3.7 million tons of bituminous coal were sold, with the Japanese purchasing 3.6 million tons of this supply. Very small amounts were shipped to other Canadian provinces and to the United States.

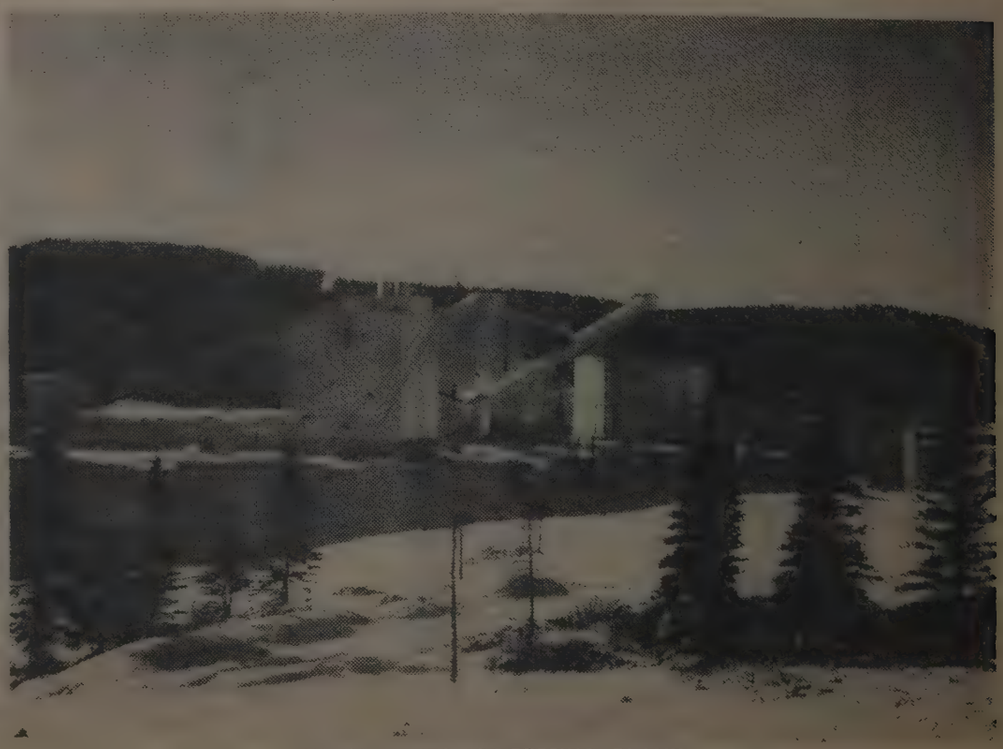
The Alberta-Northwest Chamber of Mines-Oils-Resources sums up the 1972 Alberta coal picture:

"The coal industry has experienced some decline in the exploration field but operating companies with contracts are endeavoring to increase tonnage contracts. New price-per-ton rates have been negotiated during the past year, hopefully to improve the profit picture. Increased demand for western Canadian coals appears necessary with a forecast of two new producers coming on stream before the end of this decade."

Production of other minerals remained fairly constant with 1971 levels.

Cement production amounted to $21.1 million.

Sand and gravel production netted $16 million, while salt production was steady at about $2.6 million.



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SIXTH NATIONAL NORTHERN DEVELOPMENT CONFERENCE

MINING and CANADA'S NORTH

MACDONALD HOTEL EDMONTON OCTOBER 31, NOVEMBER 1 and 2, 1973

OBJECTIVE:

"TO FURTHER STIMULATE THE ORDERLY DEVELOPMENT OF CANADA'S NORTHLAND"

CONFERENCE OBJECTIVES

The National Northern Development Conference series has as its objective the further stimulation of the orderly development of Canada's northland. Conferences held triennially since 1958 have pursued this objective by attempting:

1. to keep before the Canadian people and government the importance and problems of Canadian northern development;
2. to publicize the resources of the Canadian North;
3. to further relationships with those interested abroad who can assist in the development of Canadian northern resources and who can share in the benefits from a development program;
4. to press for the accomplishment of those policies which will expedite orderly development and utilization of northern resources to result in the greatest benefit to Canada.

Mr. N. A. Lawrence
Chairman
Executive Committee
Sixth National Northern Development Conference

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MR. W. S. ZIEGLER, Chairman, Inland Cement Industries Limited.

CONFERENCE PROGRAM

Wednesday, October 31

9:00 a.m. CONFERENCE OPENING:
The Honourable Dr. J. W. GRANT MacEWAN, Lieutenant Governor of Alberta

A REVIEW OF THE STATUS OF RESOLUTIONS FROM THE FIFTH CONFERENCE
MR. G. R. CAMERON
Chairman, Resolutions Committee
Executive Assistant, Canadian Utilities Limited, Edmonton, Alberta.

10:10 a.m. PANEL I — "MINERAL POTENTIAL OF NORTHERN CANADA"
Panel Chairman: MR. G. H. FINLAND
President, Branta Explorations Ltd., Edmonton, Alberta

1. POTENTIAL ORE RESERVES
DR. D. R. DERRY
Derry, Michener & Booth, Geological Consultants, Toronto, Ontario.

2. EXPLORATION METHODS
DR. A. R. BARRINGER
President, Barringer Research Limited, Rexdale, Ontario.

3. PROBLEMS OF PRODUCTION
MR. D. R. De LAPORTE
Vice President, Western Minerals Division, Falconbridge Nickel Mines Limited, Toronto, Ontario.

12:00 Noon LUNCHEON ADDRESS:
"CANADA — AS A GLOBAL SUPPLIER OF MINERALS"
MR. ALFRED POWIS
President, Noranda Mines Limited
Toronto, Ontario

2:00 p.m. PANEL II — "PRINCIPAL MINERALS—THE GLOBAL SITUATION"
Panel Chairman: The Honourable F. H. PEACOCK
Minister of Industry and Commerce
Government of Alberta, Edmonton, Alta.

1. EXPLODING WORLD REQUIREMENTS
MR. SABURO TANABE
Senior Managing Director, Nippon Steel Corporation, Tokyo, Japan
2. GLOBAL SOURCES OF SUPPLY
MR. CHARLES BRUCE
Vice President, DeGolyer and MacNaughton Dallas, Texas
3. CANADA'S COMPETITIVE POSITION
MR. S. E. JAMIESON
President and Director, The British Metal Corporation (Canada) Limited
Toronto, Ontario

7:00 p.m. DINNER ADDRESS:
"CANADA'S NORTHERN DEVELOPMENT"
The Honorable D. S. MacDONALD
Minister of Energy, Mines and Resources
Government of Canada
Ottawa, Ontario

Thursday, November 1

9:00 a.m. PANEL III — "GOVERNMENT & THE MINING INDUSTRY"
Panel Chairman: Mr. G. C. HAMILTON
Chief Commissioner, City of Calgary, Calgary, Alberta
1. GOVERNMENT ASSISTANCE AND REGULATIONS
Mr. C. H. MITCHELL
Managing Director, Mining Association of British Columbia, Vancouver, B.C.
2. CROWN CORPORATIONS
The Honorable J. V. CLYNE
Chairman, MacMillan Bloedel Limited
Vancouver, B.C.
3. THE ROLE OF GOVERNMENTS
Mr. JACK AUSTIN
Deputy Minister, Department of Energy, Mines and Resources, Government of Canada, Ottawa, Ontario.

12:00 noon LUNCHEON ADDRESS:
"GOVERNMENT PROBLEMS OF OUR NORTH"
Mr. S. M. HODGSON
Commissioner of the Northwest Territories
Yellowknife, N.W.T.

2:00 p.m. PANEL IV — "MOVING MINERAL RESOURCES"
Panel Chairman: Mr. W. S. ZIEGLER
Chairman, Inland Cement Industries Limited, Edmonton, Alberta.

1. BRINGING NORTHERN MINERALS TO WORLD MARKETS
Mr. R. F. MOE
Mining Consultant,
Pacific Palisades, California

2. LAND TRANSPORTATION
Mr. R. A. BANDEEN
Executive Vice-President, Finance and Administration, Canadian National Railways, Montreal, Quebec

3. MARINE SHIPPING
Mr. W. H. GERMAN
Senior Partner, German & Milne
Montreal, Quebec

4. TRANSPORTATION OF THE FUTURE
Mr. RICHARD ROHMER, Q.C.
Barrister and Solicitor, Lang, Michener, Cranston, Farquharson & Wright; and Deputy Chairman, Great Plains Project
Toronto, Ontario

7:00 p.m. DINNER ADDRESS:
"MINING AND CANADA'S NORTH— THE ENVIRONMENT"
Dr. O. M. SOLANDT

Friday, November 2

9:00 a.m. PANEL V — "THE FUTURE REQUIREMENTS FOR NORTHERN MINING"
Panel Chairman: Mr. D. E. MITCHELL
President, Great Plains Development Company of Canada Ltd.
Calgary, Alberta
1. ECOLOGICAL RESPONSIBILITIES
Dr. D. A. CHANT
Chairman, Department of Zoology, University of Toronto
Toronto, Ontario
2. ECONOMIC AND LEGISLATIVE INCENTIVES
The Right Honorable
E. C. MANNING, P.C., C.C.
President, M&M System Research Ltd.
Edmonton, Alberta.
3. SOCIAL RESPONSIBILITIES
Ms. PAT CARNEY
President, Gemini North Ltd.
Yellowknife, N.W.T.

11:30 a.m. RESOLUTIONS
Mr. G. R. CAMERON
Chairman, Resolutions Committee

1:00 p.m. LUNCHEON ADDRESS:
"SUMMATION"
Dr. A. J. R. SMITH
President, The Conference Board of Canada, Ottawa, Ontario

2:30 p.m. CONFERENCE CLOSING

On October 31, November 1 and 2, the sixth in the series of National Northern Development Conference will convene in Edmonton's Macdonald Hotel to consider "MINING AND CANADA'S NORTH."

The National Northern Development Conference series was organized some 20 years ago, and first convened in Edmonton in 1958. It all began when a number of individuals came together to do something about their concern of Canada's North and its orderly development. A great need was felt to remedy the lack of information and knowledge that could be applied to northern activities, and so they determined that they should bring together some of these people who could contribute to the knowledge needed to develop a clear understanding of the needs and implications of northern development. To provide some focus, a central theme was chosen and each conference since then has dealt with a specific area of interest and concern. -

It was determined that conferences of the highest possible quality should be formulated, and that three-year intervals between conferences would be required to assure that degree of quality. The search for suitable speakers and the many other aspects of planning involving considerable organizational effort, and the success of past conferences has been a product of the dedication of the business and professional people involved. Members of the Executive Committee and their sub-committees serve entirely as volunteers, and backup staff for all of their endeavours is provided by their respective businesses at negligible cost to the conference. Edmonton has contributed the kind of community spirit that has made each conference a complete success.

To this date, the conference has no paid employees. It receives moral support from the Chamber of Commerce and the Alberta-Northwest Chamber — Mines-Oils-Resources, but operates with a large measure of independence.

The National Northern Development Conferences could not operate on their present scale without the financial support of the business community and the three levels of government. These bodies are called upon to sponsor various functions and activities at each conference, minimizing registration costs to individual delegates and maintaining high standards.

Speakers at the conferences likewise participate on a voluntary basis, and receive no remuneration for either travel or living expenses. That the conference is able, on this basis, to attract highly qualified speakers from the United States and other countries as distant as Japan is tribute to its stature.

Past conferences have dealt with a number of themes, as outlined below:

1958 — "THE LAST FRONTIER IN NORTH AMERICA"
1961 — "CANADA'S NEW ROLE IN RESOURCE DEVELOPMENT"
1964 — "CANADA'S NORTHLAND AND WORLD MARKETS"
1967 — "MAN AND THE NORTH"
1970 — "OIL AND NORTHERN DEVELOPMENT"
and now 1973 — "MINING AND CANADA'S NORTH".

The forthcoming program "MINING AND CANADA'S NORTH", promises to be one of the most interesting, since it is centred on an area that concerns and affects all Canadians. Concern for the ecology and the people of the North will receive prime consideration at several of the conference sessions and representation from the North has been assured.

A considerable amount of time following each panel presentation is reserved for statements from and discussion among delegates. These discussions form perhaps the most important and certainly the liveliest portions of the program.

Tangible results of the conference are, of course, manifest in the increased knowledge and understanding of the participants and delegates. In addition, the major concerns of the delegates are summarized as Resolutions, which are formalized and presented to appropriate governmental and other bodies. These resolutions constitute the working voice of the conferences.

Following each conference, the presentations of invited speakers, and statements made during discussion period, are compiled in the Conference Proceedings. Proceedings of the Sixth Conference will be published early in 1974, and each delegate will receive a copy. The sponsorship of the Department of Indian Affairs and Northern Development will make it possible to distribute copies of the Proceedings to approximately 400 technical and public libraries across Canada. Experience of past conferences indicates that the limited quantities printed rapidly make "collectors' items" of the available copies.

It is with pleasure that the Executive Committee invites you to attend the Sixth National Northern Development Conference on "MINING AND CANADA'S NORTH".

N. A. LAWRENCE
Chairman

MINING & CANADA'S NORTH
EDMONTON — OCT. 31, NOV. 1 & 2

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Chairman
Executive Committee
Sixth National
Northern Development
Conference

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CONFERENCE PROGRAM

Wednesday, October 31

9:00 a.m. CONFERENCE OPENING:
The Honourable Dr. J. W. GRANT MacEWAN, Lieutenant Governor of Alberta

A REVIEW OF THE STATUS OF RESOLUTIONS FROM THE FIFTH CONFERENCE
MR. G. R. CAMERON
Chairman, Resolutions Committee
Executive Assistant, Canadian Utilities Limited, Edmonton, Alberta.

10:10 a.m. PANEL I — "MINERAL POTENTIAL OF NORTHERN CANADA"
Panel Chairman: MR. G. H. FINLAND
President, Branta Explorations Ltd., Edmonton, Alberta

1. POTENTIAL ORE RESERVES
DR. D. R. DERRY
Derry, Michener & Booth, Geological Consultants, Toronto, Ontario.

2. EXPLORATION METHODS
DR. A. R. BARRINGER
President, Barringer Research Limited, Rexdale, Ontario.

3. PROBLEMS OF PRODUCTION
MR. D. R. De LAPORTE
Vice President, Western Minerals Division, Falconbridge Nickel Mines Limited, Toronto, Ontario.

12:00 Noon LUNCHEON ADDRESS:
"CANADA — AS A GLOBAL SUPPLIER OF MINERALS"
MR. ALFRED POWIS
President, Noranda Mines Limited
Toronto, Ontario

2:00 p.m. PANEL II — "PRINCIPAL MINERALS—THE GLOBAL SITUATION"
Panel Chairman: The Honourable F. H. PEACOCK
Minister of Industry and Commerce
Government of Alberta, Edmonton, Alta.

1. EXPLODING WORLD REQUIREMENTS
MR. SABURO TANABE
Senior Managing Director, Nippon Steel Corporation, Tokyo, Japan
2. GLOBAL SOURCES OF SUPPLY
MR. CHARLES BRUCE
Vice President, DeGolyer and MacNaughton Dallas, Texas
3. CANADA'S COMPETITIVE POSITION
MR. S. E. JAMIESON
President and Director, The British Metal Corporation (Canada) Limited
Toronto, Ontario

7:00 p.m. DINNER ADDRESS:
"CANADA'S NORTHERN DEVELOPMENT"
The Honorable D. S. MacDONALD
Minister of Energy, Mines and Resources
Government of Canada
Ottawa, Ontario

Thursday, November 1

9:00 a.m. PANEL III — "GOVERNMENT & THE MINING INDUSTRY"
Panel Chairman: Mr. G. C. HAMILTON
Chief Commissioner, City of Calgary, Calgary, Alberta
1. GOVERNMENT ASSISTANCE AND REGULATIONS
Mr. C. H. MITCHELL
Managing Director, Mining Association of British Columbia, Vancouver, B.C.
2. CROWN CORPORATIONS
The Honorable J. V. CLYNE
Chairman, MacMillan Bloedel Limited
Vancouver, B.C.
3. THE ROLE OF GOVERNMENTS
Mr. JACK AUSTIN
Deputy Minister, Department of Energy, Mines and Resources, Government of Canada, Ottawa, Ontario.

12:00 noon LUNCHEON ADDRESS:
"GOVERNMENT PROBLEMS OF OUR NORTH"
Mr. S. M. HODGSON
Commissioner of the Northwest Territories
Yellowknife, N.W.T.

2:00 p.m. PANEL IV — "MOVING MINERAL RESOURCES"
Panel Chairman: Mr. W. S. ZIEGLER
Chairman, Inland Cement Industries Limited, Edmonton, Alberta.

1. BRINGING NORTHERN MINERALS TO WORLD MARKETS
Mr. R. F. MOE
Mining Consultant, Pacific Palisades, California

2. LAND TRANSPORTATION
Mr. R. A. BANDEEN
Executive Vice-President, Finance and Administration, Canadian National Railways, Montreal, Quebec

3. MARINE SHIPPING
Mr. W. H. GERMAN
Senior Partner, German & Milne
Montreal, Quebec

4. TRANSPORTATION OF THE FUTURE
Mr. RICHARD ROHMER, Q.C.
Barrister and Solicitor, Lang, Michener, Cranston, Farquharson & Wright; and Deputy Chairman, Great Plains Project
Toronto, Ontario

7:00 p.m. DINNER ADDRESS:
"MINING AND CANADA'S NORTH— THE ENVIRONMENT"
Dr. O. M. SOLANDT

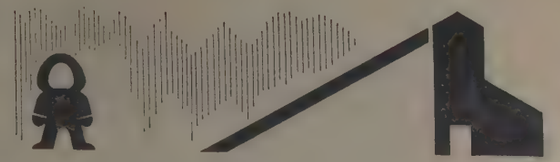
Friday, November 2

9:00 a.m. PANEL V — "THE FUTURE REQUIREMENTS FOR NORTHERN MINING"
Panel Chairman: Mr. D. E. MITCHELL
President, Great Plains Development Company of Canada Ltd.
Calgary, Alberta
1. ECOLOGICAL RESPONSIBILITIES
Dr. D. A. CHANT
Chairman, Department of Zoology.
University of Toronto
Toronto, Ontario
2. ECONOMIC AND LEGISLATIVE INCENTIVES
The Right Honorable
E. C. MANNING, P.C., C.C.
President, M&M System Research Ltd.
Edmonton, Alberta.
3. SOCIAL RESPONSIBILITIES
Ms. PAT CARNEY
President, Gemini North Ltd.
Yellowknife, N.W.T.

11:30 a.m. RESOLUTIONS
Mr. G. R. CAMERON
Chairman, Resolutions Committee

1:00 p.m. LUNCHEON ADDRESS:
"SUMMATION"
Dr. A. J. R. SMITH
President, The Conference Board of Canada, Ottawa, Ontario

2:30 p.m. CONFERENCE CLOSING



On October 31, November 1 and 2, the sixth in the series of National Northern Development Conference will convene in Edmonton's Macdonald Hotel to consider "MINING AND CANADA'S NORTH."

The National Northern Development Conference series was organized some 20 years ago, and first convened in Edmonton in 1958. It all began when a number of individuals came together to do something about their concern of Canada's North and its orderly development. A great need was felt to remedy the lack of information and knowledge that could be applied to northern activities, and so they determined that they should bring together some of these people who could contribute to the knowledge needed to develop a clear understanding of the needs and implications of northern development. To provide some focus, a central theme was chosen and each conference since then has dealt with a specific area of interest and concern. -

It was determined that conferences of the highest possible quality should be formulated, and that three-year intervals between conferences would be required to assure that degree of quality. The search for suitable speakers and the many other aspects of planning involving considerable organizational effort, and the success of past conferences has been a product of the dedication of the business and professional people involved. Members of the Executive Committee and their sub-committees serve entirely as volunteers, and backup staff for all of their endeavours is provided by their respective businesses at negligible cost to the conference. Edmonton has contributed the kind of community spirit that has made each conference a complete success.

To this date, the conference has no paid employees. It receives moral support from the Chamber of Commerce and the Alberta-Northwest Chamber — Mines-Oils-Resources, but operates with a large measure of independence.

The National Northern Development Conferences could not operate on their present scale without the financial support of the business community and the three levels of government. These bodies are called upon to sponsor various functions and activities at each conference, minimizing registration costs to individual delegates and maintaining high standards.

Speakers at the conferences likewise participate on a voluntary basis, and receive no remuneration for either travel or living expenses. That the conference is able, on this basis, to attract highly qualified speakers from the United States and other countries as distant as Japan is tribute to its stature.

Past conferences have dealt with a number of themes, as outlined below:
1958 — "THE LAST FRONTIER IN NORTH AMERICA"
1961 — "CANADA'S NEW ROLE IN RESOURCE DEVELOPMENT"
1964 — "CANADA'S NORTHLAND AND WORLD MARKETS"
1967 — "MAN AND THE NORTH"
1970 — "OIL AND NORTHERN DEVELOPMENT"
and now 1973 — "MINING AND CANADA'S NORTH".

The forthcoming program "MINING AND CANADA'S NORTH", promises to be one of the most interesting, since it is centred on an area that concerns and affects all Canadians. Concern for the ecology and the people of the North will receive prime consideration at several of the conference sessions and representation from the North has been assured.

A considerable amount of time following each panel presentation is reserved for statements from and discussion among delegates. These discussions form perhaps the most important and certainly the liveliest portions of the program.

Tangible results of the conference are, of course, manifest in the increased knowledge and understanding of the participants and delegates. In addition, the major concerns of the delegates are summarized as Resolutions, which are formalized and presented to appropriate governmental and other bodies. These resolutions constitute the working voice of the conferences.

Following each conference, the presentations of invited speakers, and statements made during discussion period, are compiled in the Conference Proceedings. Proceedings of the Sixth Conference will be published early in 1974, and each delegate will receive a copy. The sponsorship of the Department of Indian Affairs and Northern Development will make it possible to distribute copies of the Proceedings to approximately 400 technical and public libraries across Canada. Experience of past conferences indicates that the limited quantities printed rapidly make "collectors' items" of the available copies.

It is with pleasure that the Executive Committee invites you to attend the Sixth National Northern Development Conference on "MINING AND CANADA'S NORTH".

N. A. LAWRENCE
Chairman

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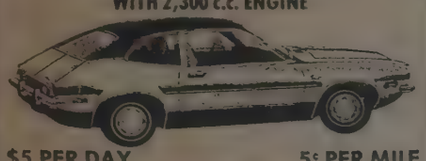

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Expansion drops, sales climb in B.C.

The news from British Columbia's mining industry is a mixture of good and bad.

While sales revenues were up 24 per cent over 1971, the rate of expansion in the B.C. sector of the mining industry showed a decline in 1972.

The Mining Association of British Columbia reports that in 1972 new capital inflow necessary to expand existing mines or develop new mines and employment declined sharply.

The economic report on the B.C. mining industry was prepared by Price Waterhouse and Co. for the Mining Association of British Columbia for its annual report.

The study is intended to provide accurate and reliable information on the industry for the public and for government. Although the association commissions the study each year, the work is done by the chartered accountants on a completely independent basis at "arms length" from the association.

The 1972 study has been developed from information supplied by 51 major mining companies in B.C. which over the last 10 years required $2 billion worth of capital to stimulate and sustain economic growth.

During 1972, the report states, net capital inflow into the B.C. mining industry fell to $260.8 million, only 56 per cent of the 1971 total and less than in any year since 1968.

The report notes that this is in marked contrast to the situation in the neighboring Yukon Territory, where increased capital was available, but not spent.

In the report, Price Waterhouse says completion of several major new mines in late 1971 and in early 1972 was the principal factor in reducing the industry's need for new capital.

The report also noted that the smaller number of projects in the development stage make it unlikely that the record levels of expansion reached in 1970 and 1971 will be reached again for several years.

The 24-per-cent rise in sales revenue, the Price Waterhouse statement notes, is a reflection of increased copper and coal production in the province.

Capital expenditures on mining in B.C. fell to $112 million in 1972, the lowest total in the last five years and only 33 per cent of the 1971 level of $340 million.

Continuing, the report

MINING INDUSTRY

forecast capital expenditures in 1973 would drop further to only $61 million.

During 1972, exploration and development expenditures were $72 million, up 10 per cent from 1971, but only 84 per cent of the record 1970 level. Price Waterhouse also noted that over 55 per cent of the 1972 total in this category was spent on five mining properties which completed construction and began production before 1972 ended.

"The level of activity in the last two years has been much less than the record high level established in 1970, indicating a general slow-down in the pace of exploration and development activity in the province."

The study reports that expenditures by the mining industry in British Columbia had an income effect of $690 million in the province.

The income effect, the report states, represents about six per cent of the gross provincial product.

In 1971, by comparison, the gross income effect by the B.C. mining industry was $850 million, or eight per cent of the gross provincial product.

It has been projected that, given a continuance of world demand for British Columbia's mineral products and a favorable legislative climate, the British Columbia mining industry could continue to expand and thus be instrumental in generating $1 billion worth of income in the province before the end of this decade," Price Waterhouse said.

"However, as the decrease in the economic impact of the industry as between 1971 and 1972 clearly indicates, this growth is very much dependent upon exploration for and the development of new mines.

"While there are several major properties now under consideration by the industry, none are at the commitment stage because of financial and legislative uncertainties. Accordingly, the growth trend of the industry demonstrated in the past may not continue at the same accelerated pace."

Dollar volume of sales revenue in the industry reached $519 million, the report notes.

Copper was the leading revenue producer with 37 per cent of total sales. As well, after four years' production, coal surpassed zinc to become the second largest revenue-producer with 17 per cent of total sales.

Exports accounted for 88 per cent of all revenues, with 54 per cent of mineral production going to a single country—Japan.

The report also notes that wages, salaries and benefits paid by the industry rose 10 per cent, with wages and benefits averaging $12,292 per employee.

Regarding ownership, Price Waterhouse found that among the major mining operations in British Columbia, 59 per cent were owned by Canadians and 68 per cent controlled by Canadians.

It also found that the mining industry paid taxes totalling $72.4 million to the various B.C. governments, both provincial and municipal, and to the federal government.

The B.C. mining industry, which as a whole recorded a loss in 1971, earned a 1.77 per cent return on total shareholders' investment of $985 million in 1972.

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Falconbridge Copper

Would a continued holding of Falconbridge Copper be wise at this time? I am concerned about the outlook for the stock market which I believe might affect this stock.

You are right to be concerned about the prospect for the market as a whole.

But often a mining stock will do well for some time, even in the face of overall uncertainty or, for that matter, general market weakness.

Boomlets in metal prices are slow to develop during an economic recovery and by the same token tend to last longer once they do get under way.

Something like that has happened to mines over the past three years: a slow rebound from the recession, but plenty of zip now.

Copper prices in particular are strong, and this is boosting the profits of Falconbridge Copper which operates four copper mines (other metals, too, are produced).

The free-swinging copper price on the London Metal Exchange doubled from its level of early 1973 to a recent $1 a pound top. The set Canadian price of producers has gone up over 30 per cent.

This has made previous profit estimates for the year look absurdly low—estimates of $1.60 a share, made last spring, likely will be low by as much as 70 or 80 cents.

The stock, at a recent $14, seems worth holding—even for one with a short-term approach.

Pine Point dividends vary

How can I figure out the yield from Pine Point dividends? I have seen various figures. Does this stock pay a set amount of dividends and, if so, how much?

It pays a handsome amount of dividends, but it's easy to get confused about the "rate."

Keep in mind that a company isn't committed to pay a specific amount on a common stock (unlike preferred shares, which usually carry a specified amount per share).

Hence, dividend amounts can vary—up or down, quarter by quarter; and, sad to say, they sometimes can disappear altogether.

Pine Point, a lead-zinc producer at Great Slave Lake, takes full advantage of this flexibility—paying out dividends according to the money it's making at any given time, and sometimes paying "extra" dividends.

This table shows how they fluctuated, 1968-72:

1968	1969	1970	1971	1972
$4.50	$4.00	$9.00	$2.50	$3.50

At mid-year recently $1.75 was paid as a dividend. So what's the yearly rate? Difficult to know.

But if we assume it is $3 a year, then dividing the market price per share (let's say, $34) into the dividend, we get a current yield of 8.8 per cent. If the 1973 payout turns out to be $3.50, then the yield would be just over 10 per cent.

Placer Development has appeal

What is the outlook for Placer Development at the present time? I am interested in the long term prospects.

Placer operates several producing mines and holds substantial stock in other metal producers. It is also diversified into non-mining activities here and abroad.

The boom in metal markets has given almost every mining company a shine.

The heavy demand and higher prices for metals, especially zinc and copper, probably are due for a cooling-off at some point. But well-financed, diversified operators like Placer should take such normal setbacks in stride.

The active exploration program of Placer gives the stock—recently trading around $28—an added speculative appeal.

McIntyre outlook improved

Would it be wise to hold McIntyre Porcupine Mines for several years? I have some shares of that stock.

At about $52, the stock is far down from previous highs.

But the earnings outlook has improved—several estimates range upward from $4.50 a share for this year, contrasting with a loss the last two years.

McIntyre, which has major investments in other companies, should derive more income in the future from Falconbridge Nickel and from Madeleine Mines.

Sherritt prospects bright

Is it possible Sherritt Gordon Mines would earn double what it did in 1972, as I have heard?

A sure thing. It earned 40 cents (excluding special items) in all of last year while net profit was equal to 58 cents a share in the first half of this year.

Estimates for the full 1973 year range from $1.60 to $2 a share, the rise reflecting buoyant metal markets and better fertilizer prices too.

Brunswick Mining looks good

Is there any hope that Brunswick Mining and Smelting Corp. will show an improvement from the losses of recent years? Is there hope the stock will go higher?

This Noranda-managed base metal company ran up losses for some years, but seems to have turned the corner into profits now. Some estimates for 1973: net profit of 40 or 50 cents a share.

Actually, Brunswick was increasing its revenues yearly since getting into production in the mid-1960s (at Bathurst, N.B.) but heavy costs put it into red ink.

The share price sagged from around $9 half a dozen years ago to a bottom of $2 but has since rebounded to around $5 to $5.50. The prospect looks good.

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Digging new shaft brightens the future for Con gold mines

NORTHERN MINING

The famous Con Mine at Yellowknife N.W.T., recently threatened with extinction, is looking at a bright new future with the decision to sink a new mile-deep shaft into one of the major gold ore-bodies in Canada.

Digging the new shaft to a depth of 5,800 feet at a cost of about $6,000,000 is the first step in what will be a $12,000,000 multi-phase project by Cominco Ltd. to rejuvenate the mine over a 30-month period.

Work has already started and is expected to create about 40 new construction jobs.

The announcement was made earlier this year jointly by Jean Chretien, minister of Indian affairs and northern development, and Frederick Burnet, chairman and chief executive officer of Cominco.

"These planned and contemplated expenditures will add a new dimension to the future of the Yellowknife area as a gold-mining community," Mr. Chretien said.

"These plans for the Con will help ensure continued prosperity for the community of Yellowknife for many years to come. Opened in 1938, the mine was the first gold producer in the Northwest Territories and started Yellowknife on the road to becoming the most economically advanced community of the Northwest Territories."

Mr. Burnet said the new shaft is necessary in order to develop the potential of the extensive Campbell-Giant shear zone which extends for miles in the Yellowknife area and is considered to be one of the major gold-bearing structures in Canada.

The company has been faced with the possibility of having to shut down the mine in a few years because of the high cost of production and the low price of gold.

The new program will lower production costs, help preserve continuity of employment and make it possible to increase production. Current production of 500 tons of ore per day will not be affected by the construction.

Other phases being planned are a new headframe, office, a new waste handling system, new hoist designed to go to the 7,100 level, underground crusher, increased mill capacity and auxiliary facilities.

Read The Albertan every morning for last night's closing market quotations from Toronto, Montreal, New York and Vancouver.

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Placer's $40-million 'shopping list'

VANCOUVER — The entrance to Stan Marshall's office is one of a score of similar storefronts in Vancouver's Burrard Building shopping arcade. Within this office, however, is a group of people who, under Mr. Marshall's direction, have one important function — they spend money in impressive quantities.

Mr. Marshall is purchasing manager for Placer Development Limited. He and his staff spend in excess of $43 million each year.

His 10-man team of domestic, foreign and contract commodity buyers represent three large mines in B.C. and a fourth in the Philippines. All four operate 365 days of every year, and have a perpetual need for equipment and supplies.

"To give you some idea, together the mines wear out around 2,000 tons of steel each month," Mr. Marshall said in an interview. "They use it, as grinding rods and balls, to reduce ore to particle-size and free the mineral for concentration."

While a small percentage of this grinding steel is imported from Japan, he added, the bulk of it is bought in Canada from people like Stelco, Algoma and Ocean Foundries.

"Obviously, there are times when we have to import, but by far the largest slice of the $3.5 million we spend each month goes to Canadian business."

Mr. Marshall's "shopping list" results from batches of

MINING INDUSTRY

mail or telex requisitions which arrive daily in his department.

Items on the list may range from six-inch spikes to 100-ton ore trucks. Most expendable items—such as the spikes—are supplied under contract from manufacturers' stock and same - day shipment to the mines poses few problems. Larger items, however—like the $300,000 ore trucks — are put out to tender and delivery date is a negotiated matter.

Every day, Mr. Marshall said, six trucks transport about 44,000 pounds of freight from Vancouver to each of Placer's three B.C. mines.

"They're scheduled to arrive at 7 a.m. the following day and carry just about all the day-to-day equipment and miscellaneous operating supplies the mines may need. "Our freight bill for trucking is more than $1.5 million a year."

The mines supplied out of Vancouver are Placer's Endako molybdenum mine at Endako, B.C., the Gibraltar copper mine at McLeese Lake and the Craigmont copper mine at Merrit, B.C.

Placer provides a number of services, including purchasing, to Marcopper, which it developed and in which it has a 40 per cent share interest.

Stan Marshall joined the company's stock transfer department as an office junior more than 38 years ago.

"It was Jan. 11, 1935," he says without hesitation: "I was fresh out of school and really had no intention of staying. As far as I was concerned, it was just a fill-in until a job understudying Vancouver school board's engineer opened up." But Placer was humming, even in the early days, and he "just sort of stayed."

"There was no purchasing department then," Mr. Marshall recalled. "In fact, when I started, there were only about a dozen people in head office." (Now Placer counts 194 people on its Vanocuver staff.) Mr. Marshall formed the purchasing department in 1948 to handle purchasing for the tungsten mine at Salmo.

In the early 1950s, Placer's material expenditures stood at a monthly average of about $60,000. Since then the company's operations have expanded and its purchases now average $3.5 million a month. Purchases for its B.C. operations in the last 10 years have provided the federal and provincial governments with estimated total sales and social security taxes of close to $15 million.

Placer group mines now use 33 of the giant 100-ton and 85-ton trucks. Tire replacements for this fleet are approximately $100,000 a month and the annual gas and diesel consumption is in excess of three million gallons. Explosives used in mining amount to 24 million pounds a year.

"Today, we tend to take these big dollar expenditures for granted," Mr. Marshall said. "But frankly, if someone had suggested back in 1935 that I'd be responsible for buying an annual 40-odd million dollars worth of services and equipment, I probably would have held out for the steam engineer's job after all." Nevertheless, he stayed and is generally recognized as one of the most able buyers in the business.

"We are not always on the lookout for the cheapest material around," he said. "Obviously, price has to be a consideration, but quality and service are also important."

"Let's face it," he said, anyone can place an order. But knowing the reliable sources, ensuring delivery on time and to specification—these are the extras that call for experience."

He said that prudent buying helped to ensure that necessary equipment was delivered on or ahead of schedule during construction of the Gibraltar mine. That was one of the reasons why this $64 million project was brought into production in record time.

The job demands a sound technical background and a good all-round knowledge of mining. "Just recently, I've been studying various aspects of packaging," he said. "This was for an order of 100,000 20-pound steel pails—about a year's supply for one of the mines."

He explained that the pails were required for shipment of molybdic oxide which must, due to stringent purity requirements, be transported in steel drums lined with polyethylene bags. Molybdic oxide and molybdenum concentrate are employed in the hardening process for high temperature steels for special applications in the space industry and for tool steel.

The same mine, Endako, annually buys approximately

Continued on P. 17

THESE TWO MEN are responsible for a significant share of the total purchases by B.C.'s mining industry. Stan Marshall, left, is manager of purchasing for Placer Development Limited, which annually buys approximately $40 million worth of goods and services for use by various mines in the Placer group. Curly Colwell, right, is purchasing supervisor, special projects, for Placer.

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Athabasca earnings higher

Athabasca Columbia Resources Limited reported earnings for the twelve months to May 31, 1973, were $141,403 or 11 cents per share compared with a restated operating loss of $200,103 before an extraordinary credit of $405,869 in the previous year.

The company had a funds generation from operations for the year of $744,508.

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Gulf Minerals introduces air bus to move workers to northern mine

SASKATOON — The problem of manpower turnover at remote northern mining developments has prompted Gulf Minerals Canada Limited to decide in favor of an "air-bus" service to transport workers to and from its $50-million Rabbit Lake uranium deposit under development in the Wollaston Lake region of northeastern Saskatchewan.

Previously, construction of a townsite was considered near the mine and mill which are scheduled to be in full production by April, 1975, processing 2,000 tons of ore daily.

"Through a wide range of industry and personnel inquiries, it became apparent that prolonged family residence in remote areas is not as attractive to employees as leaving the family for short durations," L. E. Lewis, Gulf Mineral's manager of mining and environment, recently told the western conference of the Canadian Institute of Mining and Metallurgy in Saskatoon.

"We are convinced that the air commuter system can work effectively and will have the added advantage of giving us the flexibility to employ a greater number of native people. The same airlift system would draw employable Indians from various outposts in northern Saskatchewan."

The system will provide all employees with air transportation on company-hired aircraft to the mine site from existing communities for short work periods.

"Employees would live in

NORTHERN MINING

bachelor quarters for possibly four days, working 12-hour shifts. Their return home would likewise be provided using company-paid aircraft," said Mr. Lewis.

Transportation into the remote Rabbit Lake location was first accomplished by air charter service, but in the last few years a winter road was built to accommodate heavy equipment and supply movements.

Mr. Lewis anticipated that some 10,000 tons of freight would be hauled over the winter road in 1973 and an even larger quantity in 1974.

Meanwhile, an all-seasons road to points north of Reindeer Lake, including the company's Rabbit Lake operation, has been under construction. The Saskatchewan government started a road north of La Ronge some years ago which was eventually to connect the northern communities of Stoney Rapids and Uranium City. Each year this road opened up some 20 to 30 miles of new country from which some mines have developed.

"This road construction has been accelerated now because of Gulf Mineral's Rabbit Lake development and should reach the west shore of Wollaston Lake sometime in 1974," Mr. Lewis stated.

"This road — which has been designated Highway 105 by the Saskatchewan government — will encourage much more exploration activity in northern Saskatchewan and hasten its development."

Gulf Mineral's multi-million dollar plant was in the early phases of construction amounting to building camp facilities and preliminary site work with placement of mill foundations. Mr. Lewis said the 1973 and 1974 construction phases will consist of continual installation of concrete, steel and equipment with completion scheduled for early 1975.

The company's mining plans call for open-pit bench method with front-end loader and truck operation. About 30 feet of glacial till will be removed to get to the common bedrock-ore level. The pit will develop to 400 feet below surface and will extract 97 per cent of the deposit. The remaining three per cent will be mined out by adits and inclines from the pit limits.

A first-in-Canada grinding system will be incorporated into the uranium milling process, explained Mr. Lewis. Grinding will be accomplished by a 20-foot diameter autogenous mill without preliminary crushing equipment.

"This requires closely-controlled mill feed size obtained from the mine rock breakage in order to make the system work efficiently and give the necessary mill discharge in respect to grind and quantities," said Mr. Lewis.

$40-million shopping list

Continued from P. 16

50,000 33-gallon steel drums worth in excess of $300,000.

All told, Mr. Marshall said, nearly 300,000 tons of ore concentrates are shipped out of the Placer group of mines in B.C. each year.

"We have contracts with the railroads and a trucking firm," he said. "Service from these carriers is excellent and they earn approximately $2 million a year from the mines."

Placer was incorporated in British Columbia in 1926. As well as its mines in B.C. and the Philippines, the group has mineral interests in Alberta, Ontario, Quebec, the U.S. and Australia. It carries out exploration throughout North America, in South Africa, South America and a number of other countries.

Of its three mines in B.C., Endako is the largest molybdenum producer in Canada and the second largest in the world. It produces 15 million pounds of metal in concentrate each year.

On a tonnage throughput basis, Gibraltar—71 per cent owned by Placer—is one of the largest non-ferrous mines in Canada, while Craigmont, near Merritt, last year produced more than 47 million pounds of copper in concentrate.

All of these mines, plus Marcopper, route the bulk of their purchasing through Mr. Marshall's department. This results in the processing of more than 100 requisitions daily, but it also adds up to economical purchasing.

The distance of Mr. Marshall's department from the mines is compensated for by his proximity to suppliers. "And since most items are delivered to the mine on that day's truck-run," he said, "even the distance isn't much of a problem."

This thought seems to sum up Mr. Marshall's philosophy. "Tell us what you need—we'll find it. No problem."

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Outright charitable donations may solve minor tax problems

YOUR TAXES
by
I. H. ASPER

With the appointment of a non - departmental advisory council to the minister of national revenue a few years ago, it was widely hoped that many of the administrative policies of revenue officials would be reviewed and changed in an effort to create more harmonious relations between taxpayer and tax collector.

The advisory council was drawn from across the country and includes many lawyers and accountants who know first-hand that even the fairest or best - intentioned legislation can become burdensome if its implementation is unnecessarily complex or inflexible.

Since the advisory council was formed there has been considerable improvement in departmental operations, but its work has been hampered because successive governments have for unexplained reasons treated the department of national revenue as a minor post.

The ministry itself has been used as a training ground for up and coming new ministers. The ministers have been changed with such frequency as to have prevented anyone from having had enough experience in the post to have really taken hold of the department.

In the result, the real power in the department has been exercised by civil servants who have been able to command their army of bureaucrats with little input from the elected ministers. While the civil servants are able, nevertheless, they are not elected and results tend to be insensitive to the attitudes of their customers, the taxpayers of Canada.

This is an undesirable situation from the taxpayer's point of view. When it is remembered that the only direct contact with government for millions of voters is their relationship with the tax department, the absence of strong political control over its operation is even politically unwise.

The situation could be improved if the citizens advisory council were given greater scope to search out and examine departmental practices which are often unnecessarily onerous on taxpayers. There are many.

An example of the kind of administrative practice which should be reconsidered is the department's policy regarding deductions for charitable contributions where the giver gets something nominal in return for his gift, such as a meal or free admission to some event.

This is particularly relevant at this time of year when church groups, athletic organizations, community clubs and cultural organizations are planning their annual appeals for funds.

It has become standard procedure for these groups to plan $10-, $20- or $50-per-plate banquets with the idea of having the hall and food donated or supplied at low cost. The profit goes to the charitable organization. Until a few years ago the organizations would issue receipts for tickets sold and the buyers would deduct the expense from their income as a charitable gift.

The fact is that in almost all cases, the expense is a charitable gift in the fullest sense. The ticket buyer isn't excited about having to go to the dinner unless it is some outstanding event such as a theatrical or other cultural program.

In any event, the tax department issued a bulletin in 1971 and again this year, stating that it would not allow deductions for these charitable gifts unless the charitable organization separated the amount of the gift from the value of what the donor received or was entitled to receive.

Thus, if one wishes to support the local amateur baseball club by buying $100 of tickets to the annual fund-raising banquet, the organization must first calculate the fair market value of the standard chicken dinner and then issue a receipt for the difference, say $60.

Strictly speaking, that's the law. But what is ignored is that in many cases, the donor isn't really interested in spending one of his few free evenings in a hot, crowded hall eating a standard catered meal. He may or may not attend the dinner, but even if he doesn't attend he is only allowed a tax deduction for part of his donation.

This increases his cost considerably; not enough to inspire him to take to the streets in protest, but enough to pin-prick and irritate him.

So much so that many business firms which normally support these community activities are becoming less generous. In fact some have resolved the tax problem by refusing to buy tickets to the fund-raising event and are making outright and fully-deductible donations instead.

It's quite true that this procedure solves the minor tax problem but that's not the point. The fact is that there are literally dozens of such bureaucratic irritants in the tax system, involving only minor tax and revenue implications. It would be worthwhile, in the name of simplicity, to reconsider many of them in an effort to reduce the amount of time and effort Canadians spend in complying with the tax law.

Tax administrators have bigger fish to fry and would welcome being relieved of the somewhat petty job of making sure someone doesn't get a tax-deductible meal or theatre ticket.

Mr. Asper is a Winnipeg lawyer and leader of Manitoba's Liberal party.

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Turner's questionnaire needs cautious approach

JOHN MEYER
ANALYSIS

Many manufacturers were undoubtedly prepared to expand production facilities even without the incentive of the 50 per cent write-off and the 40 per cent rate on income. The growth in demand from the time the Turner measures were first announced to when they became law has been quite substantial, more than enough to justify in itself a considerable part of the indicated rise in capital spending this year. And there have been other, if less visible, incentives to expansion during that period.

The continuing currency adjustments, for example, opened up new marketing possibilities as imports were made less competitive and exports more competitive. Several relatively new products, mobile homes as an instance, gained a much faster acceptance, with consequence strains on existing production facilities, than had been anticipated. The expectation of a continuing high level of demand, even though not as high as in 1973, has also been an active incentive to expansion now.

For all that, there is no doubt that the Turner measures have set into motion expansion and renovation which, without those measures, would have continued to be marginal and held back. One of the many difficulties confronting the manufacturers who now must answer the Turner questionnaire is where to draw the distinction between expansion originating with growth or new marketing opportunities and expansion made possible by the Turner measures. It can't be an easy distinction to make in many instances.

A related consideration is the timing of expansion. The lead time in making an investment may be anywhere from six months to two years before the new facility is in place. Remember the delays in having the measures made law. To be sure, much of the advance planning was done in the expectation that the measures would pass so that the new investment could be set in motion once they were passed. Even so, the time in which the measures might apply has been greatly shortened by the delay in their passage.

Implicit in these considerations is the requirement of manufacturers to be extremely careful in their answers. There is, of course, an immediate concern with their individual tax positions. Beyond that is the concern for what effect on fiscal policy the sum of their answers might have. A tendency to exaggerate the effect of the measures would be quite understandable, given the obvious benefits that derive from them, but that is precisely what critics of the measures are looking for. It should be avoided for that reason.

The questionnaires will be accompanied by interviews which will permit the manufacturers to elaborate their answers well beyond the restrictions a questionnaire normally imposes. For all that, consider the problem of determining which comes first, investment in a product that becomes saleable because of lower capital costs inducted by the measures and the market for the product induced by a higher level of spending power.

Rather than attempting to define precisely such answers as these, manufacturers should take the opportunity to extend the rationale for the measures beyond its original limited application as an incentive to growth at a time when the economy still had considerable slack. This could be done by reference to competitive American measures, particularly those designed to repatriate production, and including the creation of domestic international sales corporations.

This could also be done in the extent to which new investment is being financed from the increased cash flows generated by the measures. That larger dependence upon internal sources of financing is keeping corporations out of the market at a time when, increasingly, the demand for energy financing threatens to pre-empt the market. The advantages to this are obvious for a country of limited financial resources.

Osborne mine wins trophy

Osborne Lake Mine, one of Hudson Bay Mining and Smelting Co., Limited's five wholly owned base-metal mines in the Snow Lake area of northern Manitoba, has been awarded the John T. Ryan Regional Trophy by the Canadian Institute of Mining and Metallurgy.

The trophy is awarded for the lowest accident frequency rate among metalliferous mines in the Prairie Provinces and the Northwest Territories. Osborne Lake Mine's accident frequency rate was 17.77 for 1,012,487 man-hours during the period Jan. 1, 1965 to Dec. 31, 1972.

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Norman M. Lock, president of Safeway Shelter Systems Ltd., has announced the appointment of Miss Gail Ashbourne as Advertising and Public Relation Co-ordinator.

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Six Beauchamps, four brothers and both grandsons, are still on the Hudson Bay payroll. Three brothers, Oswald Jr., Ray and Jean, have been wearing their 25-year watches for many years and Paul, the fourth brother, will qualify for his gold watch in less than two years.

Oswald Beauchamp started the family tradition. He hired on as a pipefitter's helper in Aug., 1930, after working for the Fraser-Brace Construction Co., which built the company's hydroelectric plant at Island Falls, Sask., in the early 1930s. He left the company in 1935, and died in 1950 at the age of 63.

In Feb., 1932, two of his five sons, Oswald Jr., and Henry, joined the company. Oswald Jr. is still with the company, as a diesel locomotive operator, and has 41 years of service behind him.

Raymond joined the company in Sept., 1934, and is in his 39th year of service, now serving as general foreman of the surface and transportation department.

Jean, in his 31st year with the company, joined in July, 1942, and is a first aid and safety instructor in the safety department.

Paul, the fifth son, joined the company in April, 1950, and has completed 23 years of service. Currently, Paul drives a heavy-duty truck for the company.

The junior members of the Beauchamp family are Rita, a daughter of Oswald Sr., and Oswald Jr.'s two sons, Gerald and Robert.

Rita worked in the company's cafeteria several years ago for one year. Gerald is junior engineer in the mining engineering department, and Robert works underground as a miner.

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